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ENVIRONMENTAL ASSESSMENT

PEACEKEEPER IN RAIL GARRISON

AND SMALL ICBM

FLIGHT TEST PROGRAM

VANDENBERG AIR FORCE BASE, CALIFORNIA

NOVEMBER 1987

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The Peacekeeper in Rail Garrison and Small ICBM Flight Test Program Environmental Assessment (EA) is an analysis of the environmental impacts associated with the testing of the Peacekeeper/Rail Garrison and the Small Intercontinental Ballistic Missile (ICBM) basing mode vehicles and missiles at Vandenberg Air Force Base (AFB), California. The current Rail Garrison train baseline configuration consists of a standard diesel locomotive, two security cars, two missile launch cars, a launch control car, a maintenance car, and up to six commercial cars. The test vehicle for the Small ICBM is a prototype of the Hard Mobile Launcher (HML) which is nearly 105 feet long, 14 feet wide, and nine feet high with a gross weight of about 100 tons and powered by standard diesel fuel engines. The proposed action consists of testing the train and the Small ICBM Mobile Test Bed (MTB) vehicle at Vandenberg AFB on the San Antonio Terrace, with some HML mobility testing on and off base roads and on a Minuteman Missile Launch Facility site. A variety of tests would be conducted on new and existing roads and railroads, and designated land areas with various configurations of the weapon systems in an effort to simulate potential operational scenarios. The test program would require some new facility construction on previously surveyed M-X locations and would require about 115 construction personnel during peak construction activities. The five year test programs would have a peak-year employment of about 340 test personnel. The planned test period for both systems is from mid-1988 through 1992. Due to operational considerations, there are no alternatives to the proposed action. Under the no action alternative, the Air Force would not test the Peackeeper/Rail Garrison or Small ICBM and there would be no impacts. However, sufficient data would not be available to adequately address the effectiveness of the systems, jeopardizing the evaluation of these basing modes and ultimate deployment.

IMPACTS

Physical Environment: The EA concludes that minor, nonsignificant impacts would occur on the physical environment in the biological, air quality, noise, and earth resource areas. Some disturbance of wildlife and vegetation is anticipated; however, the impacts to wildlife would be temporary and impacts to vegetation would be mitigated through a five-year revegetation and monitoring program. There would be no impacts on any federal or state recognized endangered species. Therefore, impacts to plants and wildlife would not be significant. Impacts to wetlands would occur since approximately 1.7 acres of wetlands would be filled for construction of facilities and rail lines. In accordance with the Section 404 of the Clean Water Act, a nationwide permit has been granted by the Corps of Engineers, Los Angeles District. This permit requires wetlands that are filled to be replaced at a ratio of two acres created for every acre filled. Impacts to wetlands would be mitigated. Mitigation will include a dunes management plan, exotic plant removal, rehabilitation of the aquatic wildlife refuge and other environmental improvements mentioned in the Environmental Assessment.

The proposed action would cause a temporary increase in fugitive dust and vehicle emissions in the project areas. Testing would cause a limited, temporary increase in noise levels in the immediate vicinity of the test vehicles and train; however, the facilities and rail line would be located in a remote operational area of the base and noise level increases would not impact local residential communities. The impacts would not be significant.

HML mobility operations would also cause limited, but not significant, soil erosion in the limited locations of the project areas. Most of these areas have been previously disturbed and control measures would be undertaken to control erosion. No discernible environmental effects will be experienced for hydrological resources.

Human Environment: Impacts to the human environment will not be significant. Of the 340 technical support personnel about 140 are already in the area, the remaining 200 personnel will require housing, utilities, transportation and limited support from private and public facilities. Analyses demonstrates that the local communities have the ability to absorb this slight increase of personnel and impacts will be negligible. At least sixteen cultural sites which have historic and prehistoric significance and are potentially National Register eligible have been identified in the San Antonio Terrace area. Siting of the facilities for the proposed action would take these sites into consideration and all cultural sites would be avoided. Management of the cultural resources will be in accordance with the Programmatic Agreement among the United States Air Force, the Advisory Council on Historic Preservation and the California Historic Preservation Office. Therefore, there would be no impacts to this resource. No other impacts are anticipated in the human environment.

Based on the analysis of identified environmental effects, the Air Force has found that the proposed action would not have significant environmental impacts. The environmental impact analysis requirements of the Air Force and the Council for Environmental Quality (CEQ) having been met, the Air Force has determined that an Environmental Impact Statement (EIS) is not required.

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PETER WALSH, Lt Col, USAF

Director

Environmental Planning Division

Chairman

Vandenberg Environmental Protection Committee

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1.0 OVERVIEW OF PROPOSED ACTIONS AND ALTERNATIVES

1.1 INTRODUCTION/PROPOSED ACTION

The Scowcroft Commission was established by the President in January 1983 to study the nation's strategic modernization needs. The Commission concluded that the advantages of the land-based portion of the TRIAD (i.e., low maintenance costs, high reliability, rapid response, and great accuracy in addition to its contribution to the effectiveness of the TRIAD, make it imperative that the land-based missile system be upgraded to address the challenges posed by the Soviet Union. As part of their recommendation on upgrading, the Commission urged deployment of 100 Peacekeeper missiles as an immediate measure to modernize the land-based missile system. The President, following review of the Scowcroft Commission report, decided on deployment of 100 Peacekeeper missiles in specific existing silos supported by F E Warren AFB and provided this decision in his report to Congress. The present basing mode is a 50/50 split between Minuteman silos and Rail Garrison.

Additional commission recommendations were that the United States immediately initiate engineering design of "...a single warhead ICBM weighing about fifteen tons...(leading)...to the initiation of full-scale development in 1987 and an initial operating capability in the early 1990s...Hardened silos or shelters and hardened mobile launchers should be investigated now..." (Report of the US Commission on Strategic Forces 1983). In the 1984 Department of Defense (DOD) Authorization Act, Congress authorized start-up of the Small ICBM program at a pace that would permit full-scale engineering development to begin in fiscal year 1987. Congress recommended that the program be pursued as a matter of the highest national priority, with an Initial Operational Capability (IOC) by the end of 1992.

On December 19, 1986, a presidential directive identified the Rail
Garrison system as an alternative basing mode for the Peacekeeper
Intercontinental Ballistic Missile (ICBM) with IOC in late 1991. It further
announced the decision to proceed with full-scale development of the new Small
ICBM. Flight tests of both systems will be conducted at Vandenberg Air Force
Base (AFB) to verify the launch capabilities of the basing system.

The Peacekeeper (formerly M-X) Weapon System Test Program was described in the Final Environmental Impact Statement, M-X: Milestone II; Vol III - Missile Flight Testing, January 1979, and other specific studies. Much of this data will be incorporated by reference in this assessment. At the time the Peacekeeper test facilities at Vandenberg AFB were built, no decision on the basing mode had been made. Consequently, the Peacekeeper development and test program at Vandenberg AFB was only defined through flight tests from a concrete launch pad. The major features which makes these basing modes similar to those identified in the Milestone II FEIS are: (1) the missile launches will be from facilities on the San Antonio Terrace using railroad tracks or pads in lieu of previously sited but not built horizonal shelters, and (2) both missiles be assembled in the Missile Assembly Building (MAB).

This assessment addresses impacts resulting from the current basing mode decisions, in the Peacekeeper in Rail Garrison and Small ICBM systems.

1.1.2 Purpose and Need

System level testing for Peacekeeper in Rail Garrison and Small ICBM is consistent with the ongoing mission of Vandenberg AFB. The Western Missile Test Range is operated and maintained for the purpose of conducting research and development as well as operational testing of ballistic missiles and other space-craft. Launch tests are essential to successful Peacekeeper and Small

ICBM development and deployment. The Western Pacific Test Range operation was covered in the 1978 Environmental Impact Statement.

Vandenberg AFB is the only Air Force location that satisfies requirements of the Peacekeeper and Small ICBM flight test program and maintains proposed schedules.

1.1.3 Description of Proposed Action and Alternatives

Site Specific Description of Proposed Actions and Alternatives (DOPAA), June 1987, contains details of both the Rail Garrison and Small ICBM tests to be performed at Vandenberg AFB (Figure 1). An Environmental Impact Analysis Process (EIAP) will be accomplished in accordance with AFR 19-2.

1.1.4 SYSTEM DESCRIPTION

1.1.4.1 Facilities

The testing of the Peacekeeper in Rail Garrison and Small ICBM will utilize many existing common facilities within the San Antonio Terrace at Vandenberg AFB (Figure 2). Some new roads and railroad tracks will be built and existing ones modified. The required facilities are as follows:

1.1.4.1.1 Facilities Requiring No Modifications

- o Mechanical Maintenance Facility (MMF), Building 1800
- o Payload Assembly Building (PAB), Building 8415
- o Stage Storage Facility (SSF)
- o Rail Transfer Facility (RTF), Building 1886
- o Installation and Checkout Facility (ICF), Building 1806.

1.1.4.1.2 Facilities Requiring Some Modifications

- o Integrated Test Facility (ITF), Building 12000 Enlarge doors, upgrade bridge crane and floor.
- o Stage Processing Facilities A&B, Buildings 1824 and 1833.

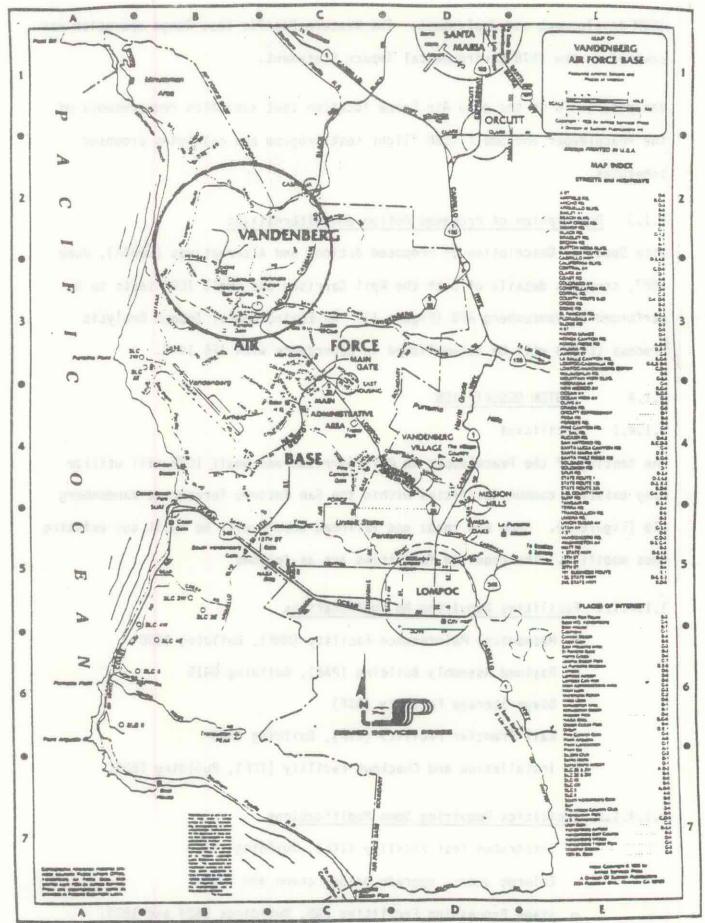


FIGURE 1. Location Map

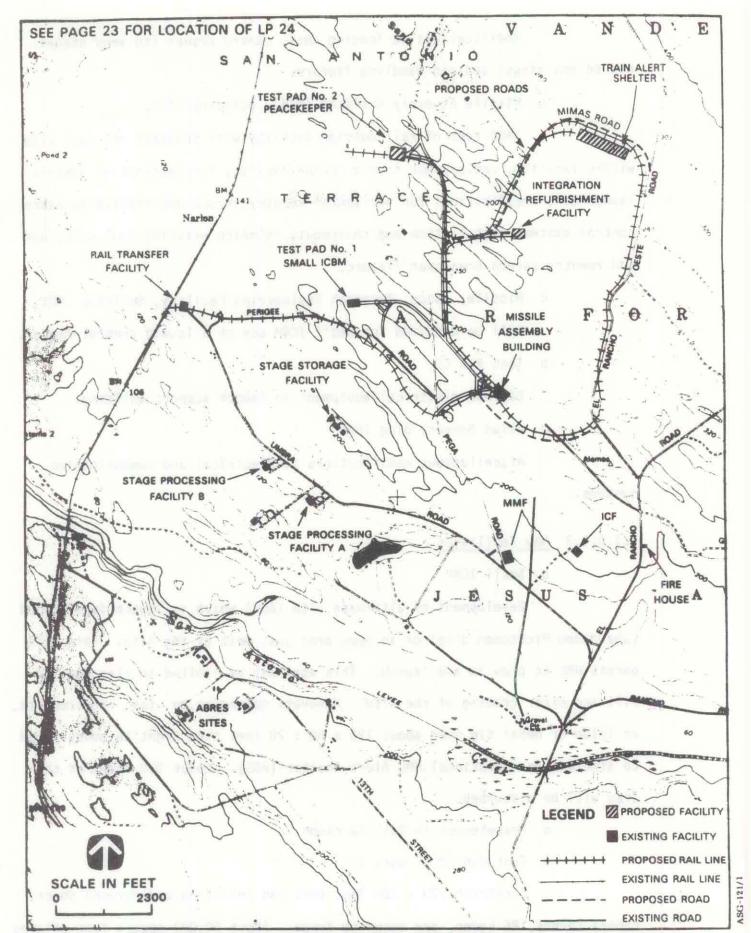


FIGURE 2 SITE PLAN, SAN ANTONIO TERRACE, VANDENBERG AFB, CALIFORNIA

Modifications to loading dock, gantry cranes (to send stages out on end rings) and pad handling fixture.

o Missile Assembly Building (MAB), Building 1819.

3400 feet of rail outside facility with trackage and rail stop within facility, cable/power trench inside facility for checkout of missile launch car, modifications for horizontal reentry shroud and missile guidance control systems installation and changeout, relocate existing tool crib, and add reentry shroud breakover fixture.

- o Missile, Space, Research Engineering Facility, Building 1801.

 Will be modified for Small ICBM use as a launch control center.
- O Test Pad 01
 Upgrade electrical equipment in launch support building.
- o Atlas Bunker, Bldg 1895

 Miscellaneous modifications to electrical and communication

1.1.4.1.3 New Facilities

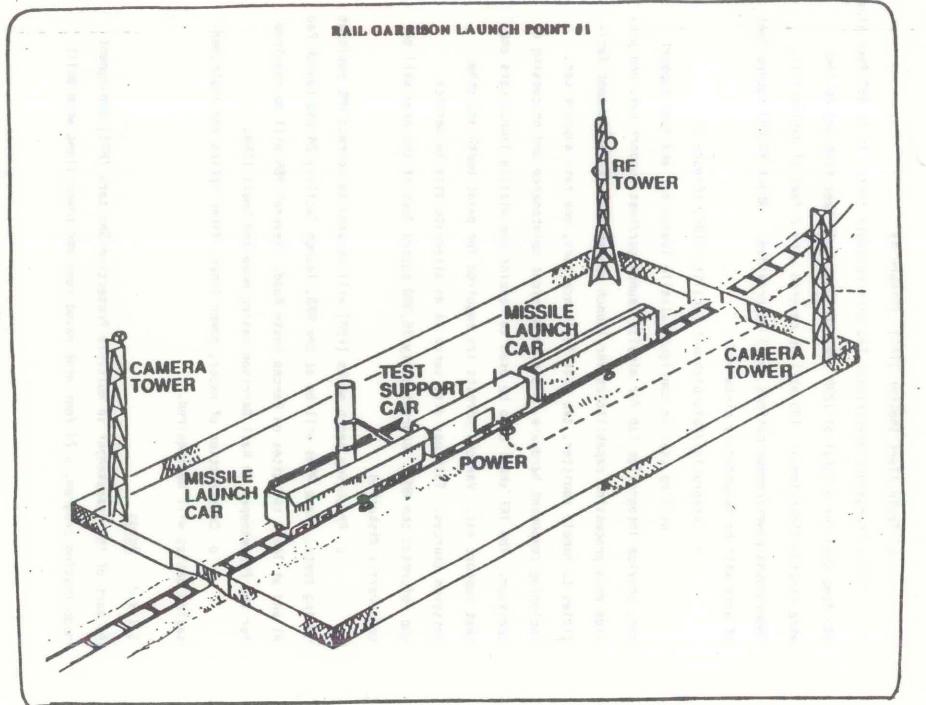
systems.

o Small ICBM

Development of alternate site (ALS) which is launch facility 24 (abandoned Minuteman site) or an open area just west of the site. This will permit HML to plow in and launch. This work may be limited to placement of fill and minor grading of the site. However, depending on test requirements, an igloo or metal tin shed about $125 \times 50 \times 20$ feet high might be constructed to simulate an operational HML Alert Shelter (HAS). About 3.0 acres of the area will be disturbed.

- o Peacekeeper in Rail Garrison
- o Test Pad 02 (Figure 3)

Construct 320×120 feet test pad including underground power, camera towers, RF tower, and security fence. About 50,000 square feet of area will be temporarily disturbed.



o Train Alert Shelter (TAS) (Figure 4)

Construct Operational TAS with reusable door. It is 660 feet plus a 540 foot shed for a total of 1200 feet in length, 22 feet high and 26 feet wide (inside dimensions). TAS will be covered with 2 feet of native fill.

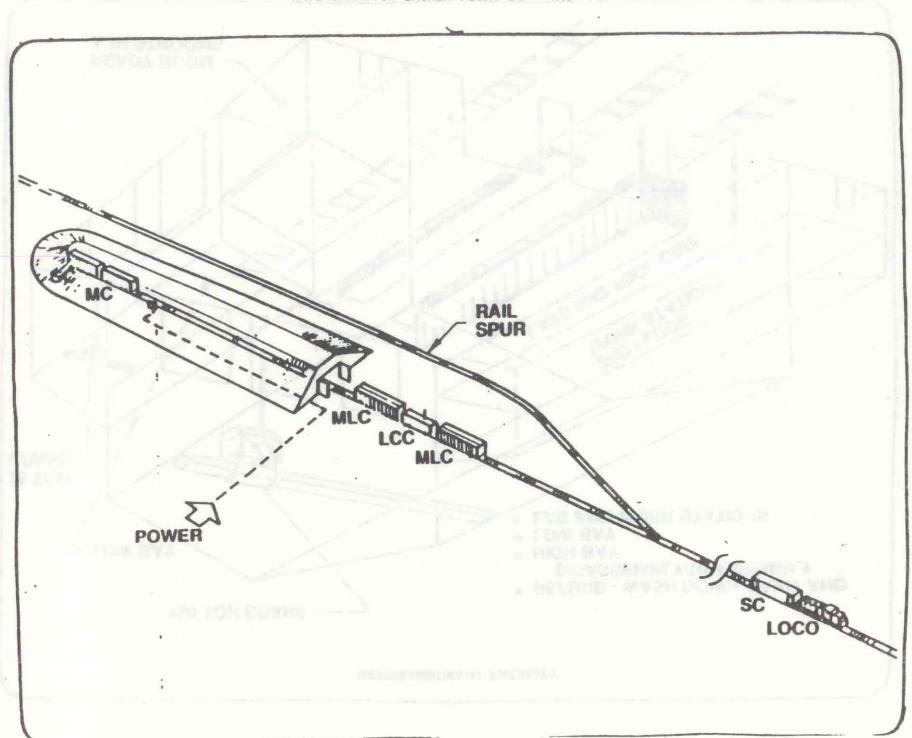
Underground power/communications shall be provided. About 90,000 square feet of area will be temporarily disturbed.

- o Integration/Refurbishment Facility (IRF) (Figure 5)
- Will be used to configure missile launch car and test support car, provide integration lab for missile launch car/test support car, and provide data processing capabilities for launch operations. Refurbishment facilities to handle canister, two missile launch cars, one test support car, including component hardware, and provide minor maintenance and processing of canister. The IRF shall also be used to repaint the missile launch cars and test support car. Various permits are required for paint booth and other emission sources. This may also serve as an alternate site to service and refurbish the HML. Approximately 36,000 square feet of the area will be temporarily disturbed.
- o Presurvey bench marks (PBM) will be used to correct HML position during tests. These PBMs will be at the MAB, launch facility 24 and Launch Pad #1 and at least two sites on Rancho Oeste Road. Several PBM will be required for the Peacekeeper in Rail Garrison basing mode and Small ICBM.
- o Construction of water, power lines, fiber optics and instrumentation cables will be required.

1.1.4.2 Roads

As part of the Peacekeeper in Multiple Protective Shelters (MPS) deployment mode testing program, a 24 foot wide paved road and power lines were built

FIGURE 4



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from the MAB to Test Pad O2. About 3.0 miles of new roads will be necessary to connect the IRF, TAS and MAB, and these roads will be paved 18 feet wide with 3.0 foot shoulders for a total width of 24 feet. An 18-foot wide gravel surfaced road will run parallel to the rail line and will provide access to the train for maintenance vehicles and fire fighting equipment. About 2.5 miles of this type of gravel road will be constructed. The Small ICBM mobility "dash scenario" could utilize this road for part of the route (See Figure 6 for roads and railroad layout). It is understood that should stopping points be required, they must be at approved siting locations.

1.1.4.3 Rail Lines

Between 7 and 8 miles of new railroad lines will be necessary to move the train and associated cars to and from the various facilities. For analysis purposes, the railroad width is assumed to be 10.0 feet. The following table shows the relative links.

Rail Transfer Facility to Missile Assembly Building	1.8 Miles
Missile Assembly Building to Test Pad #2	1.55 Miles
IRF Spur	.3 Miles
IRF to TAS	1.05 Miles
TAS to MAB (Along El Rancho Oeste Road)	2.39 Miles

It should be noted that only less than one-half mile of proposed track alignment will be placed on areas previously not sited or cleared for Peacekeeper (MX) facilities. New track will be located adjacent to and on that side of the road which will cause the least disturbance of the terrain, vegetation and cultural resources.

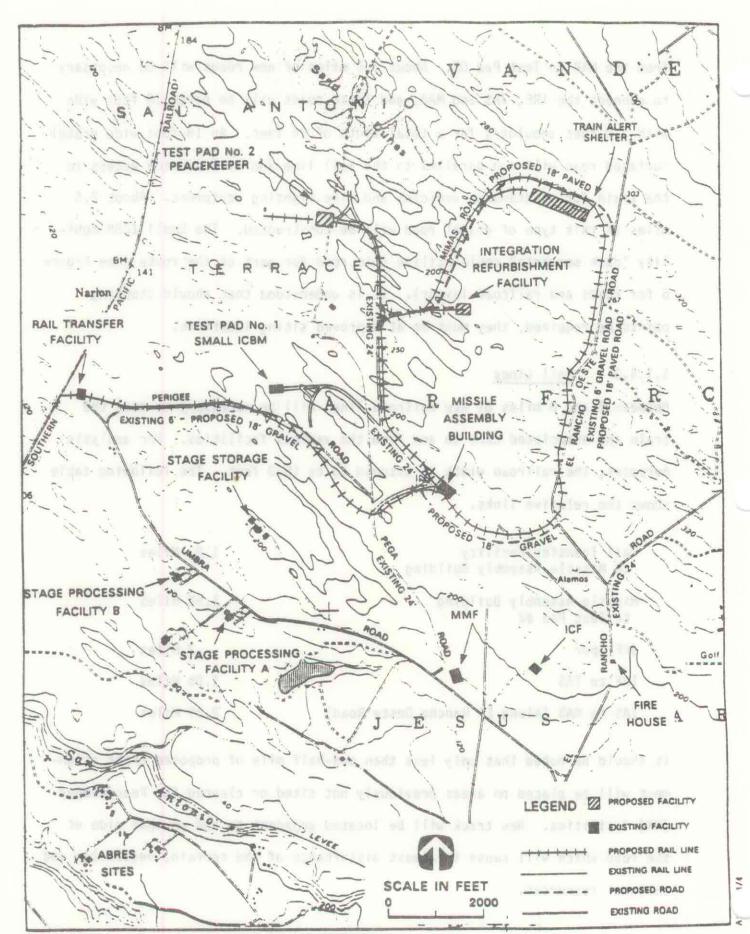


FIGURE 6 ROADS AND RAILROADS LAYOUT

1.1.5 PEACEKEEPER IN RAIL GARRISON SYSTEMS OVERVIEW

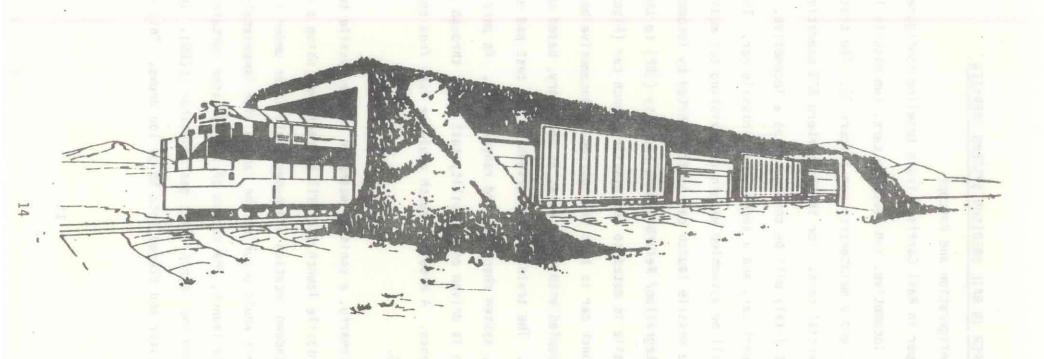
1.1.5.1 Train Configuration and Concept

The current Peacekeeper in Rail Garrison train baseline configuration consists of a standard diesel locomotive, two security cars, two missile launch cars, a launch control car, and a maintenance car (Figure 7). The train could also contain up to 6 commercial cars. For the Vandenberg AFB operations, the Rail Garrison concept most likely will be configured as a locomotive, missile launch car, test support car, and a second inert missile car. The various missile components will be assembled within the existing but modified Peacekeeper MAB. The missile launch car is transported by locomotive from the new Rail Garrison Integration/ Refurbishment Facility (IRF) to the MAB where the canisterized missile is mated to the missile launch car (Figure 8). The completed missile launch car is then transported by locomotive back to the IRF or TAS where it is coupled with other cars, as necessary, based upon the particular type of test. The train is then driven to the test pad or remains at the TAS for power up, system checkout, and range checks. As part of tests operations, the train is driven on a mobility test track through a move-stopmove navigation sequence. A missile launch could be made from the test pad, railroad track or TAS.

Following a launch scenario, a canister washdown of the missile test car, test support car and the missile launch car will be performed using a soda/water solution. At the washdown location a non-permeable liner under a concrete pad will be provided. This would occur at the launch site immediately following a launch. After missile launch, the bottom of the canister contains about 50 gallons of residue from the launch eject gas generator (LEGG). This is drained from the canister and placed into 55 gallon drums. This material is

UNCLASSIFIED

Rail Garrison Basing



(CONCEPTUAL)



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tested by Vandenberg AFB hospital staff to determine the chemical composition. If it exceeds EPA approved limits, it is disposed of in accordance with Vandenberg AFB hazardous waste procedures. Any liquid material falling on the launch pad will be flushed into an underground holding tank and handled like the material left in the canister. The missile launch car/test support car/missile launch car will then be towed to the IRF for complete refurbishment which will include a thorough washdown, canister demating, and component disassembly, preparation and painting. The washdown involves a neutralizing agent, soda water, and is not classed as a hazardous procedure.

1.1.5.2 Test Description

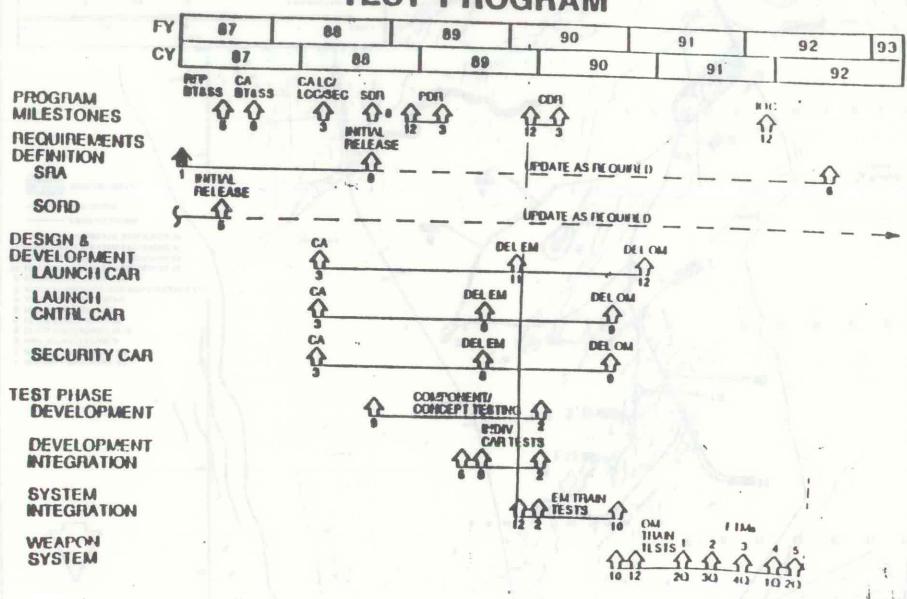
The Peacekeeper Rail Garrison train and the component cars will be evaluated from about 4th Quarter 1989 to late 1992 (Figure 9). It is expected that five test launches wil be accomplished from the train either on Test Pad #2 or at the igloo. These will include combined Development Test and Evaluation (DT&E) and Operational Testing and Evaluation (OT&E). Test operations will consist of missile canister and rail cars configuration assembly and integration, move-stop-move navigation, test launches and refurbishment. Should the system be deployed, HQ SAC will be required to conduct FOT&E tests for the system's life which is estimated to be 20 years and could have from 14 to 70 launches.

1.1.5.3 Test Area

The Peacekeeper Rail Garrison train tests operations will be primarily conducted within the San Antonio Terrace at Vandenberg AFB, California.

Operations generally will occur at locations previously sited and cleared for Peacekeeper (MX) activities (Figure 10). This location currently contains many of the facilities necessary to support the Peacekeeper in Minuteman silos flight test program, and will also support the Small ICBM flight test program.

RAIL GARRISON TEST PROGRAM



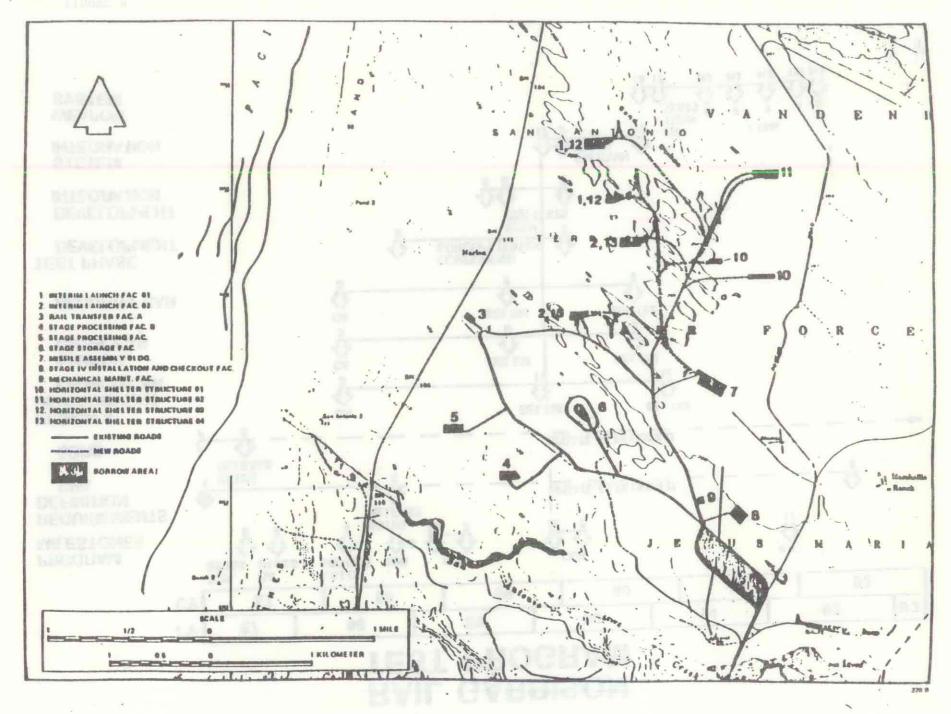


FIGURE 10. Locations of proposed roads and MX missile facilities on the San Antonio " rrace, Vandenberg Air Force Base:

1.1.5.4 Missile

The Peacekeeper is a four-stage intercontinental ballistic missile capable of delivering up to ten independently targeted and highly accurate nuclear warheads. The missile is approximately 71 feet long, 92 inches in diameter, and weighs 195,000 pounds. In contrast, the Minuteman III missile is 60 feet long with a first stage diameter of 66 inches and weighs 78,000 pounds. Three stages of Peacekeeper use solid fuel propellant. A fourth stage is liquid fueled and contains propellants (neat hydrazine) which are sealed in the tanks at the facility and are shipped by truck. Connected to the fourth stage is the Missile Guidance Control Set which controls all the missile system functions.

1.1.5.4.1 Missile Components

The Peacekeeper missile segments and component parts will be delivered by the manufacturers to the site by truck or railroad. The train elements will be delivered by rail. The missile assembly procedure is similar to Peacekeeper Phase I/Phase II through Missile Guidance Control Set (MGCS) installation. Stages I - III and lateral support group pads are transferred to the Stage Processing Facility (SPF) for checkout and processing. Stage IV is transported to the Installation and Checkout Facility (ICF) for checkout and processing. The reentry system (RS) is assembled and checked out at the PAB. The canister and launch eject gas generator are sent to the IRF for integration and checkout (but are not mated). All the components are then transported to the MAB to be assembled.

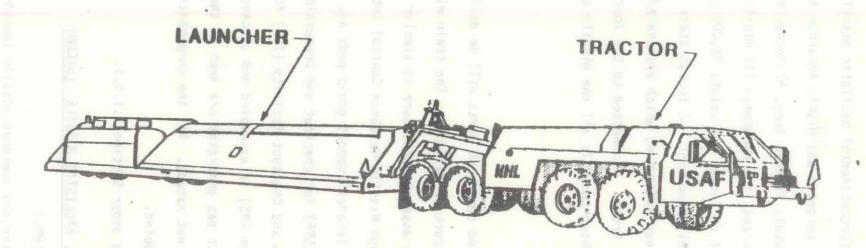
The training handling is discussed under Section 1.1.5.1.

1.1.6 SMALL INTERCONTINENTAL BALLISTIC MISSILE (SICBM)

1.1.6.1 Hard Mobile Launcher (HML)

The HML consists of a manned tractor and unmanned missile launcher and is capable of both on-and off-road travel (Figure 11). It is maneuverable and

Hard Mobile Launcher



VEHICLE CHARACTERISTICS

- CONFIGURATION: TRACTOR-TRAILER
- GROSS WEIGHT: 220,000 Pounds
- MAXIMUM WIDTH: 14 Feet
- OVERALL LENGTH: 105 Feet

equipped to allow continuous random positioning on larger government military installations or stationing at specific sites such as Minuteman facilities.

It is capable of rapid dispersal on tactical warning of attack as well as long term dispersal away from normal operating bases.

The final version of the HML will have a gross weight of about 110 tons and is approximately 14 feet wide and almost 105 feet long. It transports the missile and operational support equipment necessary to maintain alert posture or launch the missile. The HML is designed for operational flexibility and is manned by a crew of two, although all driving operations can be accomplished by one person.

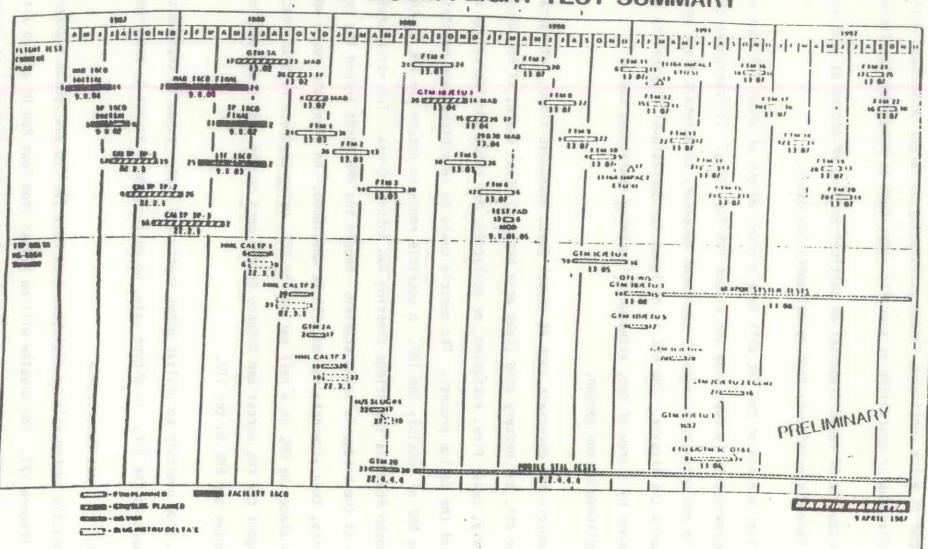
The vehicle has materials such as diesel fuel, hydraulic fluid, refrigerant, engine oil, and battery acid (lead acid battery) which could, if not handled properly, cause fire, explosion, or pollution; but these considerations are part of the design process. The vehicle could be refurbished and maintained at the MMF or possibly the IRF. A possible route to return the HML to the ITF is Rancho Road via the bridge crossing San Antonio Creek. The structural adequacy of the bridge is being studied. Should the HML loads exceed the bridge capacity, then alternate routes will be developed. An alternate route would be to place the HML on a rail car at the RTF, using Southern Pacific tracks to transport the HML across San Antonio Bridge back to the main base, off load and drive the HML to the ITF.

It is also possible to utilize other county and state routes to transport the HML back to the ITF. In either case, no environmental impact is expected.

1.1.6.2 Test Description

The missile system will be evaluated from July 1987 to the fourth quarter of 1992 (Figure 12). The missile will be tested from Test Pad O1 and an alternate launch point in another previously sited location just west of launch

VAFB SICBM FLIGHT TEST SUMMARY



N

N

facility 24. A total of 22 test launches will take place using either the canister fixed on Test Pad O1 or the HML.

The tests are broken down into four phases as follows:

- (1) Canister Lauch Test Program (CALTP), early Ground Test Missiles (GTMs) and Flights 1 through 5 from a test canister at the test pad.
- (2) Flights 6 through 9 including GTMs (prior to Flight Test Missile 6) utilizing a HML at the test pad.
- (3) Flights 10 through 18 including GTM (prior to the Flight Test Missile 10) utilizing the HML at the test pad or an alternate launch point (launch facility 24) after mobility operations.
- (4) Flights 19 through 22 which are IOT&E tests utilizing the Follow-on Test and Evaluation (FOT&E) configuration and procedures.
- (5) Flights after 22 will include SAC normal FOT&E program for the system's life which will include mobility dash exercises and missile launches.

Flights 19 through 22 will involve an operational scenario including dash operations.

1.1.6.2.1 Mobility Route

In accordance with AFR 80-14, a mobility route will be utilized for several launch scenarios. This route is divided into three segments and the overall mobility route is shown on Figure 13 and will require to be approved explosive routes.

Short Route

Leaving MAB, turn south along Pega road, west along Umbra Road, east along Perigee Road to Pega Road thence west to Launch Pad #1. About 5.6 miles.

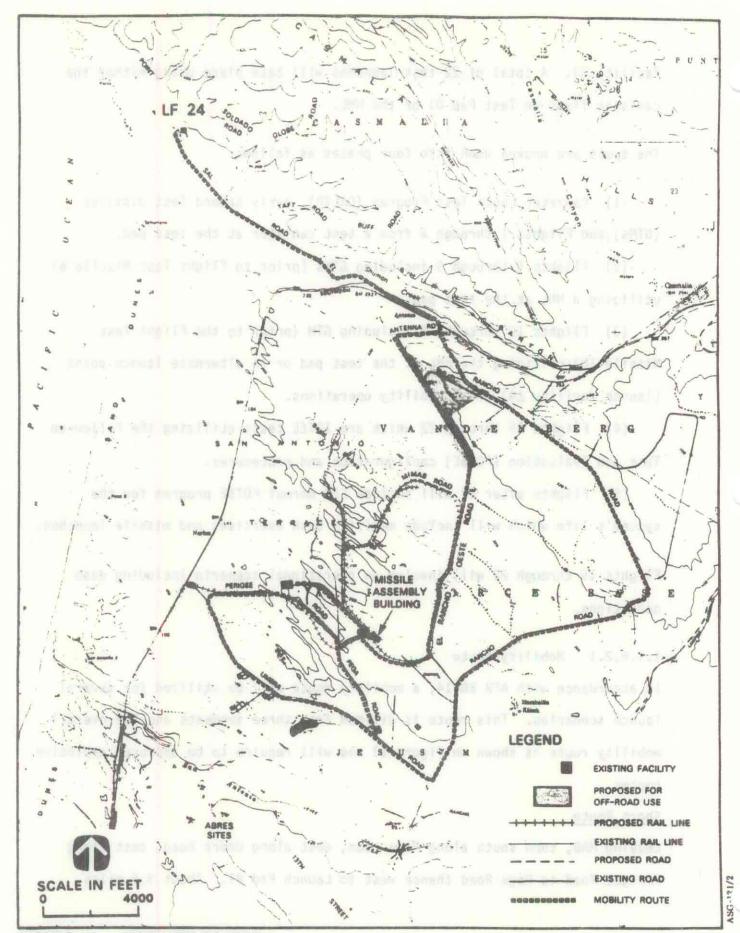


FIGURE 13 MOBILITY ROUTES

Medium Route

Leaving MAB, turn south along Pega Road, east along Umbra Road, north along El Rancho Road to Antenna Road, west along Antenna road to El Rancho Oeste Road, south along El Rancho Oeste Road, west along Perigee Road extended to Launch Pad Ol. All RF antennas must be evaluated as possible explosive detonation sources. About 13.0 miles.

Long Route

Utilizing any of the above routes in any combination and traveling in either direction, then across the Southern Pacific Railroad tracks at the 30' wide ongrade Class 1A crossing, north along Point Sal Road to launch facility 24 (abandoned Minuteman site). About 2.0 miles from SP RR north to launch facility 24.

Mobility Test Area

During the system's life, various OT&E testing will be accomplished. Prior to actual missile launches, it will be necessary to undertake certain vehicle maneuvers and tests to simulate the operational scenario that the HML would experience during dash movement. To simulate field conditions, some limited construction within the areas set aside for off-road mobility will be required. It may be necessary to excavate ditches and construct small hills to simulate off-road conditions. This will temporarily alter the physical condition of the land, but because of the infrequency of HML mobility testing, the ground cover will have an opportunity to re-establish itself. Following HML testing and use of the area it will be restored and revegetated to its original condition. No significant impacts are expected.

1.1.6.3 Test Area

The area consists of locations on San Antonio Terrace and adjacent sites at Vandenberg AFB. It includes the joint use of the MAB, Test Pad O1 and some

associated roads. Parts of San Antonio Terrace and select areas to simulate dash roads and launch positions will be utilized on base in previously sited locations.

1.1.6.4 Missile

The Small ICBM will be effective against hardened military targets and will be small and light enough to facilitate basing in a mobile mode. The Small ICBM will be a three-stage, solid propellant, single reentry vehicle missile that will be 53 feet long, 46 inches in diameter, and weigh approximately 37,000 pounds. For comparison, the Peacekeeper, our most modern ICBM, is 71 feet long, 92 inches in diameter, and weighs 195,000 pounds.

1.1.6.4.1 Missile Components

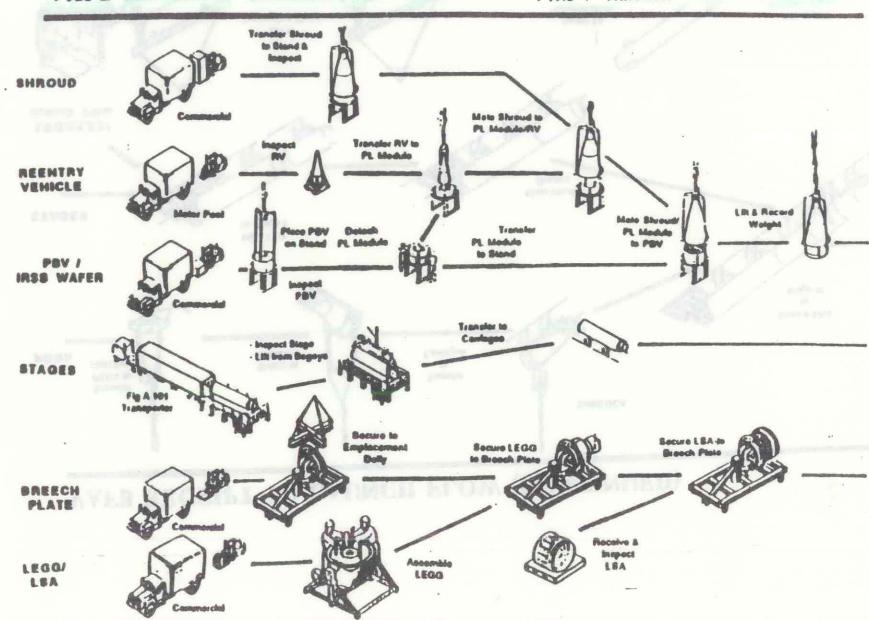
Figures 14 through 16 show a graphic description of the missile assembly process at Vandenberg AFB. This process will differ slightly for FTMs 6-22 due to the use of the HML and its canister.

Stages will arrive at the MAB by stage transportation and roll transferred onto the facility platform.

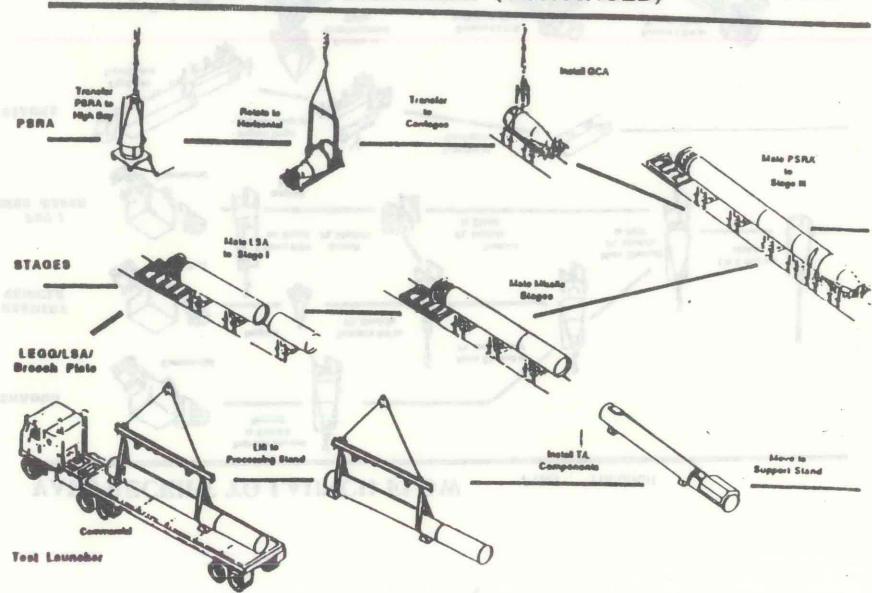
<u>Post Boost Vehicle</u> arrives at the MAB in a container as a complete component where it is mated to the Post Boost System Reentry Assembly (PSRA). It is transferred to the high bay where the guidance and control assembly is added. The completed assembly is then mated to the booster (Stages I, II and III).

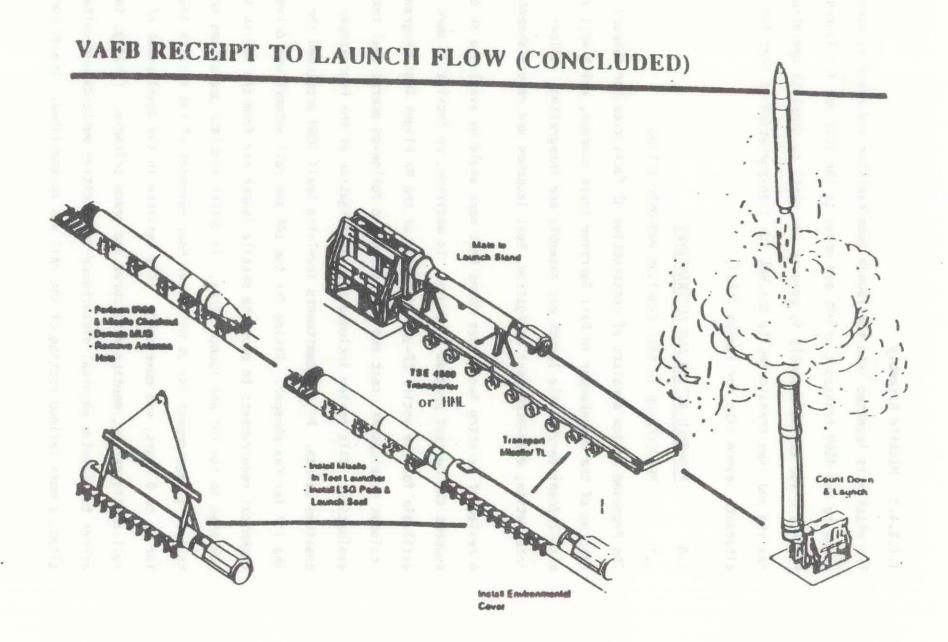
Launch Tube/Canister for Flights 1 through 5 arrives in one piece via the 4509 transporter to the MAB. For Flights 6 and up, the launch tube/canister is delivered in two sections. After inspection and processing, the unit is moved to the high bay to receive the assembled missile.

VAFB RECEIPT TO LAUNCH FLOW FTMS . THROUGH



VAFB RECEIPT TO LAUNCH FLOW (CONTINUED)





1.1.6.4.2 Missile Assembly

The missile is inserted into the launch tube/canister and moved by overhead crane to the 4509 transport or HML and moved to the test pad for launch. For Flights 6 and up the assembly is done in two parts to simulate operational realism and then transferred to the HML for transportation to Test Pad #1 or alternate launch site for launch (LF24).

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 PEACEKEEPER IN RAIL GARRISON PROPOSED ACTION

The Proposed Action consists of construction of facilities for support and testing of the Peacekeeper in Rail Garrison train concept, which will include missile/canister/missile launch car assembly and integration, railcar integration, move-stop-move navigation, test launches and refurbishment.

A review of existing facilities found that none would be available in time to support the current program schedule. In addition, no facilities were available for the entire 20-year duration of the MX Flight Test Program which includes development, test and evaluation and follow-on operational test and evaluation. This review included the investigation of the Peacekeeper ITF for possible co-use. Prior commitments involving Small ICBM precluded the use of the ITF for Peacekeeper. Siting for the IRF and rail network was driven by technical requirements to move the missile launch car from the MAB to the IRF and then to the TAS and launch sites. To better simulate operations scenarios, a requirement for 30 miles per hour movement of the missile launch car for up to 8 hours, was developed. This resulted in the development of a loop rail configuration, meeting rail curve and grade criteria. Finally, in an effort to minimize physical disturbance to sensitive wetlands and cultural sites, a more refined routing of the rail was accomplished. Though some minor

variance is possible, no major resiting of the IRF or rail network is possible without compromising system test effectiveness or further jeopardizing sensitive land areas.

The testing of the missile system falls into two broad areas, integration tests and weapons systems tests.

2.1.1 Integration Tests

Integration tests will include both development integration tests and system integration tests. Integration tests to be conducted at Vandenberg AFB include mechanical interface and operation, electrical equipment interface, and car-to-car interface tests.

2.1.2 Weapons Systems Test

Weapon system tests are conducted to demonstrate system performance, and evaluate effectiveness and suitability using operationally configured equipment and procedures. Various weapon system tests which might be expected to be conducted at Vandenberg AFB include integration and checkout of the locomotive, security car, launch control car, missile launch car, canisterized missile/missile launch car, built-up missile launch car, missile launch car/launch control car or missile launch car/launch control car/security car. Other possible tests include those of train in TAS Environmental Control System (ECS) test, ground test train garrison operations and flight testing. At present, five test launches are planned utilizing Test Pad 02 and/or the TAS.

2.1.3 Support Requirements

Test operations will require personnel and utilities support. Electrical service fiber optics and instrumentation cables to the test facilities are required, including the TAS, test pads and the IRF. Presently, electrical

service exists to the Test Pad 02 but will need to be extended a distance of 1.5 miles to the IRF and TAS. Communication links will be provided to the test pad, TAS, IRF, ITF, and the missile launch car. Potable water will be supplied to the IRF from an existing Vandenberg AFB water supply system in accordance with requirements of Air Force Manual 88-15.

The proposed facilities, along with an estimate of personnel required to operate them for test operations, are the following:

St	ssile Assembly Building (MAB) age Processing Facility (SPF) (A&B) tegrated Test Facility (ITF)	445	ea	(nou)
TA	IS THE PROPERTY OF THE PARTY OF	25		(new)
Te	est Pad	25		(new)
Tr	tegration/Refurbishment Facility (IRF)	85		(new)
D	il Transfer Facility (RTF)	12		7.
Ke	Ill Transfer ractifity (MME)	65		
MI	ssile Maintenance Facility (MMF)	35		
Ir	nstallation and Checkout (ICF)			
Pa	ayload Assembly Building (PAB)	35		
St	tage Storage Facility (SSF)	30		

All utilities will be placed within existing predisturbed areas such as road shoulders or new disturbed areas such as road or railways. A paved parking area outside the facility fence will be required for the following number of vehicles: 25 at TAS, 25 at test pad, and 80 at the TRF. There will be an additional 31 personnel required to support train operation which will mean a total of about 170 new staff over the present staffing level.

Consumables. During the test periods, various amounts of domestic waste and effluents will be generated. Water, electricity, diesel fuel, solvents, greases, and soda/water solution will be consumed. Only Air Force approved paints, thinners and solvents will be used.

About 20,000 gallons of diesel fuel is stored at an existing above-ground tank within the area. This tank will be refilled as needed. Primary consumers of diesel fuel are the locomotive, transfer vehicles, other heavy equipment and diesel auxiliary power generators.

After each of the five launches, the missile launch car will be washed down at the launch site with about 300 gallons of soda/water solution. An additional 1,000 gallons of water will be used at the IRF for additional equipment cleaning. Post washdown wastes will be collected and disposed of in accordance with the approved Vandenberg AFB Hazardous Waste and Spill Plan approved in 1987. The following products generated by the washdown process may be classed as a hazardous waste, depending upon the concentration.

	Allowable EPA Limits	R	ange	
Constitutent	ug/1	ug/1	ug/l	
Aluminum		425	3320	
Antimony		< 10	< 10	
Arsenic		< 10	264	
Barium		<200	212	
Boron		1075	4300	
Cadmium	100	< 10	42500	
Calcium		18.6	95.6	
Chloride		168	5100	
Chromium	50	< 50	50390	
Copper		22	1915	
Iron		330	14180	
Lead		< 20	801	
Manganese		76	13750	
Nickel	2000	120	110000	
		7.3	25.6	
Selenium		< 10	< 10	
Silver			300	
Sodium	500	1786	2107	
Zinc			59800	

Domestic waste and effluents will be generated by the personnel at the site and will be disposed of in septic tanks and leach fields. Solid wastes will be collected by a private contractor and disposed of off base at an approved landfill site.

2.2 PEACEKEEPER IN RAIL GARRISON ALTERNATIVES

System level testing of missiles/rocket vehicles is consistent with the ongoing mission of Vandenberg AFB. The Western Missile Test Range is

operated and maintained for the purpose of conducting research and development as well as operational testing of ballistic missiles and other space vehicles. Vandenberg AFB unique flight test assets currently support the Peacekeeper in Minuteman Silo basing mode, and a majority of these assets will be used for Peacekeeper in Rail Garrison testing, therefore, no other Air Force bases were considered.

Options to the current Proposed Action that have been evaluated are the following:

Option #1 Use of Existing Vandenberg AFB Facilities. An option was considered to use other existing Vandenberg AFB facilities in support of the Peacekeeper in Rail Garrison basing mode concept. Identified facilities included shuttle facilities (e.g., V-31) located on the south side of the base and highbay facilities (e.g., building 6523) located on the main portion of the base. Access to these facilities would require use of the existing Southern Pacific rail line from the San Antonio Terrace. There the missile and missile launch car would still be integrated at the MAB, and construction of possible new rail spurs to the alternate facilities would be required. These alternate facilities would be used as a system integration laboratory, contractor support area and for refurbishment functions and would require rail access.

Option #2 Full Use of The Missile Assembly Building (MAB). An option waw being considered that involved exclusive use of the Vandenberg AFB MAB for all the Peacekeeper in Rail Garrison basing mode concept functions, limited to but not including, missile assembly, system integration, system level testing, contractor support area, and refurbishment activities. The launch site activities would still be a separate, unique function not associated with this

facility. This option would eliminate the need for construction of a new IRF for Peacekeeper in Rail Garrison, but it would still keep all the functions centrally located on the San Antonio Terrace. However, this option would require that a new building be built for use by the Small ICBM Missile Test Program and this facility could not be brought online in time to meet the proposed flight test schedule.

It should be noted that the MAB is currently planned to be co-used with the Small ICBM program. The schedule for this joint use is contained in Figure 17. Any deviation from this plan may result in a severe impact to the Small ICBM Flight Test Program schedule and programmed costs.

Because of the above mentioned reasons, it is felt that neither option is a viable alternative to the current Proposed Action.

2.2.1 No Action Alternative

Under this alternative, the Air Force would not test the Peacekeeper in Rail Garrison train configuration at Vandenberg AFB. This would result in no data being available to establish this basing mode as a viable option. No impacts will occur.

2.3 SMALL ICBM PROPOSED ACTION AND ALTERNATIVES

The Proposed Action consists of test launches from the canister attached to a fixture at Test Pad O1 or from the HML at Test Pad O1 or an alternate launch site (launch facility 24). Some of the latter tests of the HML will be undertaken to demonstrate the dash scenarios using dirt, semi-improved and improved roads, in addition to possible plowing in and launching. About 22 test flights will be accomplished using Test Pad O1 or an alternate launch site on San Antonio Terrace. During the test program, joint use of the MAB with the MX Flight Test Program will be necessary. A joint utilization schedule was

developed to determine the availability of the facility to possibly support serial use (when ordnance and personnel of one system are present, the ordnance and personnel of the other system will not be present in the MAB). The summary missile processing schedule presented in Figure 17 reflects the only MAB joint-use solution without severe impact to flight schedule of both programs (i.e., using the facility in parallel--when Small ICBM and Rail Garrison missiles are present in the MAB) only one system will be processing at a given time. It should be noted that the joint-use of the MAB will occur only approximately 210 working days out of the total for the 5 years of the DT&E plan of both programs. However, should the Small ICBM be deployed, joint use of the MAB will continue. The Small ICBM program will occupy the facility with more than one missile approximately 160 days of the 5-year testing schedule.

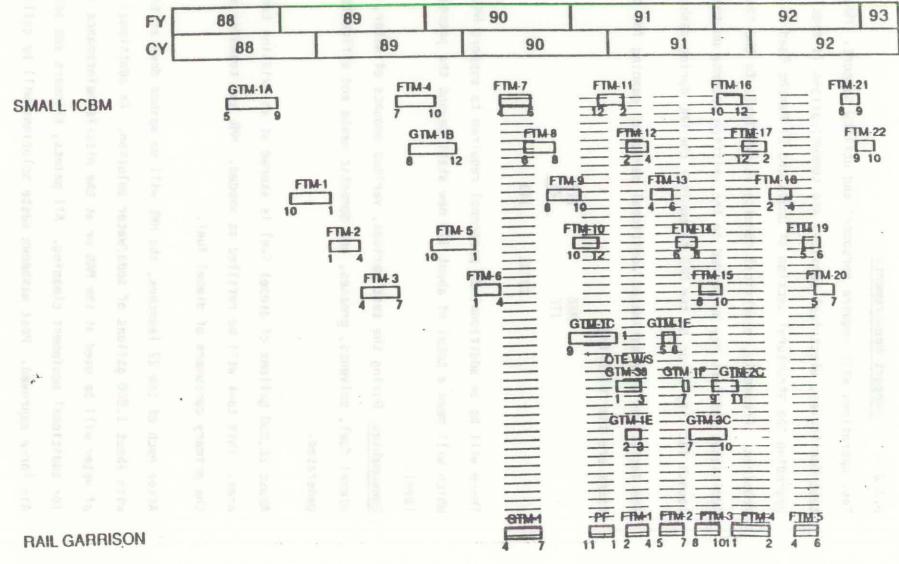
2.3.1 <u>Integration Tests</u>

Integration tests will include both development integration tests and system integration tests. Integration tests to be conducted at Vandenberg AFB include mechanical interface and operation, electrical equipment interface, and HML-to-missile interface tests.

2.3.2 Weapons Systems Test

Weapon system tests are conducted to demonstrate system performance and evaluate effectiveness and suitability using operationally configured equipment and procedures. Various weapon system tests which might be expected to be conducted at Vandenberg AFB include integration and checkout of the HML. At present, 22 test launches are planned using Test Pad O1 and/or the alternatives, launch facility 24 (an abandoned Minuteman site) or launch facility 10 (an active Minuteman site).

VAFB MAB MISSILE PROCESSING SMALL ICBM AND RAIL GARRISON





2.3.3 Support Requirements

Test operations will require personnel and utility support. Modification of test facilities, electrical service, and communications is required.

Upgrading the structural section of Umbra and El Rancho Road will also be required. Presently, electrical service is available to the test pads.

Additional emitters may be needed on the existing antenna on the ridge east of launch facility 24 or on the MAB to monitor the HML during dash operations.

The facilities with estimated additional personnel manning for test operations are the following:

There will be an additional 25 personnel required to support HML operations which will mean a total of about 170 new staff beyond the present staffing level.

Consumables. During the test periods, various amounts of water, electricity, diesel fuel, solvents, greases, and domestic waste and effluents will be generated.

About 20,000 gallons of diesel fuel is stored at an existing tank within the area. This tank will be refilled as needed. HML and transfer vehicles are the primary consumers of diesel fuel.

After each of the 22 launches, the HML will be washed down at the launch site with about 1,800 gallons of soda/water solution. An additional 10,000 gallons of water will be used at the MAB or at the missile maintenance facility or ITF for additional equipment cleaning. All paints, thinners and solvents will be Air Force approved. Post washdown waste solutions will be collected and

disposed of in accordance with the approved Vandenberg AFB Hazardous Waste and Spill Plan (1987).

Domestic wastes and effluents will be generated by personnel and disposed of by septic tank and leach fields. Solid wastes will be collected by a private contractor and disposed of off base at an approved landfill site.

2.4 SMALL ICBM ALTERNATIVES

System level testing for the Small ICBM is consistent with the ongoing mission at Vandenberg AFB. The Western Missile Test Range is operated and maintained for the purpose of conducting research and development as well as operational testing of ballistic missiles and other spacecraft. Utilizing criteria of available space to conduct required tests and support facilities, the location of Vandenberg AFB was selected. The key element in the Small ICBM tests operations is the MAB. This facility is unique because of its size and its one-of-a-kind large test support equipment (canister rotation and missile assembly fixture, stage erection platform, missile assembly work platform, two 150-ton overhead cranes, and the transfer room with a raised floor and the associated cable and floor trenches). Review of existing facilities on Vandenberg AFB which could be modified to provide missile assembly support indicates that none presently exist. This results from the required square footage, Q-D siting for explosive hazard of missile assembly operations, crane capacity, and hook height. Based on the existing testing schedules, there is insufficient time to build a new structure elsewhere. It should be noted, however, that co-use of the MAB with the Peacekeeper in Rail Garrison testing program will be required and has been approved by the Safety office. Figure 17 shows the facility joint-use schedule. There are other locations on Vandenberg AFB where similar soil conditions and road configurations could be

found; however, those are not in proximity to the MAB and would require the HML to travel frequently.

2.4.1 No Action

Under this alternative, the Air Force will not test the Small ICBM. Adequate data will not be available to address the effectiveness of the HML vehicle. Under this alternate no environmental impacts will occur. Exclusive reliance on existing Peacekeeper facilities was determined to be inadequate to meet test objectives.

3.0 EXISTING ENVIRONMENT

3.1 NATURAL ENVIRONMENT

3.1.1 Biological Resources

This section includes a discussion of vegetation, wildlife, aquatic environments, unique and sensitive habitats, and threatened and endangered species in and near the proposed project area. These biological resources were investigated for most of the proposed project area during the MX Flight Test Program (HDR 1980a). Additional surveys were conducted by Air Force contractors in 1980 and again in July and August 1987, to characterize the vegetation and general habitat and to confirm the descriptions from the MX

Flight Test Program. The following discussion incorporates these referenced studies and the results of recent field characterizations undertaken in July and August 1987.

Vegetation and Wetlands. Over the last 100 years, the coastal habitats of the Western United States have been greatly reduced and severely disturbed by human activities to the point that only a few remnants of pristine native coastal habitat still exist. Coastal dune systems have been particularly disturbed. Vandenberg AFB contains several large areas of native

coastal dune habitat that are considered to be in excellent condition because they are relatively undisturbed (HDR 1980a). Disturbance of native vegetation on Vandenberg AFB has been restricted to specific program areas. The base currently manages the remaining habitats in their natural state. The proposed project area (Figure 2) is located primarily on San Antonio Terrace which is one of the most significant dune systems on the base. The area (Figure 18) contains active dunes, various stages of stabilized dunes, dune swale wetlands, and supports several federal-candidate plant species as well as other sensitive species. A description of sensitive species known to occur in the region is presented in Table 3.1.1-1. Natural resource management agencies consider the entire dune system on San Antonio Terrace to be an important, unique and sensitive habitat at local, regional, and national levels. The dune system in the general project area is considered to be exceptional, though it also contains areas that were physically disturbed in the past and that have suffered from invasion by undesirable plant species (HDR 1980a). In effect, the general area is a mosaic of varying-quality habitats. The most recent disturbance in the project area resulted from the construction of facilities for the MX Flight Test Program. At that time, plans were made to place roads and structures over most of the current study area. Approximately twothirds of the facilities for the MX Test Flight Program were constructed and the remaining one-third were not; so that some of the area was left undisturbed. Revegetation of the areas disturbed by the MX Flight Test Program resulted in various levels of success. As of April 1982, good revegetation had been achieved on the south slope near the MAB, at the MMF, and at SPF-A and SPF-B. Revegetation efforts at the ICF and RTF were largely unsuccessful while efforts along roads resulted in poor to fair revegetation (Carter 1982). The degree of disturbance and/or invasion by non-native species provides an indication of the general quality of the vegetation. Based on recent

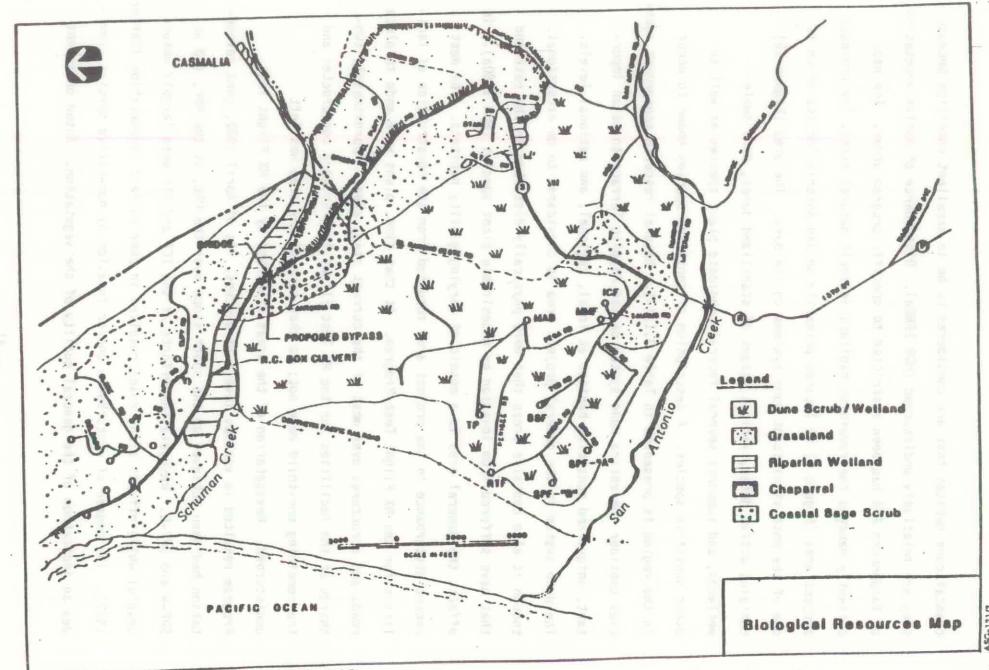


FIGURE 18 BIOLOGICAL RESOURCES MAP

Table 3.1.1-1

Threatened and Endangered Species Known to Occur in Study Region and/or Study Area

PHY.I)-WPM-103 11/10/87 Work in Progress

Scientific Name/ Common Name	Habitat	Current Range	Occurs in Region	Occurs in Study Area	Status Fed/CNPS
Plants:1		Safet agent Marry Step stocker Theories			
Amsinckia spectabilis var. microcarpa	Endemic; commonly scattered about sandy hills and brushy mesas.	Buellton to Lompoc; Purisima Hills; Surf; Burton Mesa; Santa Maria; San Antonio Creek area; Point Sal.	Yes	Yes	NA/App. I
Arctostaphylos rudis (Shagbark manzanita)	Endemic.	Burton Mesa; Purisima Hills; Lompoc Canyon; Point Sal; Nipomo Mesa.	Yes	No	Cat 2/List 4
Arenaria paludicola (swamp-sand wort)	Marshes, thickets bordering marshes.	Oso Flaco Lake area; Arroyo grande.	Yes	No	Cat2/List 1B
Baccharis plummerae Hoover's baccharis	Cool rocky places in canyons; coastal sage scrub in canyons.	Santa Ynez Mountains; Oso Canyon; Miranda Pine Creek in lower Cuyama R.	Yes	No	Cat 2/List 4*
NOOVEL 3 DECEMBER 10		Canyon; canyons between Carpinteria and Ventura to LA Co; Santa Cruz Island.			
Calystegia collina ssp. venusta morning glory	N/A	N/A	Yes	No	Cat 2/List 3
Castilleja mollis (Soft-leaved Indian paintbrush)	Endemic; widely scattered individuals on stabilized back dune slopes and ridges; sandy coastal sage scrub.	Point Conception; Point Arguello; Surf; near Casmalia; Guadalupe dunes to Oceano and Pismo Beach; Santa Rosa Island.	Yes	Yes	Cat 2/List 1E
Ceanothus ramulosus var. fascicularis (Lompoc ceanothus)	Endemic; commonly scattered on sandy mesas and nearby hills.	Lompoc; Santa Maria; Point Sal; Corralillos Canyon; Nipomo Mesa.	Yes	No	(Considered rare by regional botanists)
Cirsium loncholepis La graciosa thistle	Marshy places, hillside seeps.	Canada de las Flores near Los Alamos; west end Lompoc on road to Surf; mouth of Santa Maria River; lakes south of Oceano.	Yes	No	Cat 2/List 1E

Scientific Name/	Habitat	Current Range	Occurs in Region	Occurs in Study Area	Status Fed/CNPS
	Control Chicago of the annual reprint	part Lab groupout qua grains			
Cirsium rhothophilum	Arrested dunes near ocean.	Point Conception; Point Arguello; Surf; mouth of Santa Maria River; Guadalupe	Yes	No	Cat 2/List 1B
surf thistle		dunes; Nipomo Mesa; Pismo Beach.			
	n	Gaviota Pass to Lompoc area; Los	Yes	Yes	(Considered
(Lompoc monkey flower)	Endemic; commonly scattered about brushy woodlands.	Alamos; Santa Maria; Point Sal.			rare by regional
					botanists)
		godine apart (must must be a recon-	Yes	No	Cat 2/List 1B
Dithryrea maritima beach spectacle-pod	Sand dunes; sandy places.	Surf, west of Casmalia; Mussel Rock at Point Sal; Guadalupe Dunes; Oso Flaco Lake area; Morro Bay; also San Miguel Island and to LA county.	163		17.00
	a to the season of the season	Canada Honda Creek; Surf; Burton Mesa;	Yes	Yes	Cat 3C/List
Erigeron foliosus var. blochmaniae (Blochman's leafy daisy)	Endemie; on dunes and coast strand area.	Santa Maria River; Oso Flaco Lake; Oceano; Morro Bay.			
Erysimum suffrutescens var.	Typically on stabilized dunes.	Point Arguello to Casmalia; Point Sal; Morro Rock.	Yes	Yes	NA/List 4
(Large-leaved wallflower)					
Monardella crispa crisp monardella	Arrested and moving dunes near ocean.	Surf; Burton Mesa; Purisima Hills; mouth of Santa Maria River to Oceano.	Yes	No	Cat 2/List 15
Mondardella undulata var. frutescens (San Luis Obisopo curly-leaved monardella)	Endemic; widely scattered small to large colonies in relatively open vegetation on stabilized backdune slopes and ridges; often occurring in	Nipomo Mesa from Oso Placo Lake to Oceano, but distribution about Surf and Lompoc is unknown.	Yes	Yes	Cat 2/List 1E
monardella)	slopes and ridges; often occurring in patches along ridge-tops.				

Vandenberg Continued, Page 3 of 6

Allfoliate Office Calif				A STATE OF THE PARTY OF THE PAR	cording.
Scientific Name/ Common Name	Habitat	Current Range	Occurs in Region	Occurs in Study Area	Status Fed/CNPS
Scrophularia atrata (Black-flowered figwort)	Endemic; patchy; small to large colonies in moist swales with willows, usually growing up through Baccharis or other vegetation; diatomaceous and calcareous hills around Lompoc. Also	Point Conception to sandy Burton Mesa; Bishop pine forests about Lompoc, north to Corralillos Canyon near Point Sal; Avila area; south to Coal Oil Point, Goleta.	Yes	Yes	Cat 2/List 3
	in coastal sage scrub and other communities.				
Senecio blochmaniae (Blochman's butterweed)	Commonly scattered about stabilized backdune slopes and ridges, and on borders of willow thickets and dune marshes.	Arrested dunes from Point Conception to Surf; Point Sal and Oceano; inland to Burton Mesa, and Santa Maria Valley; Morro Bay.	Yes	Yes	NA/App. I
mention frequire fulture.	Jacks profes administrative property and transfer	Separate main and TATA Charact. Separate part main Africa almost 16 agrico. Separate of SASTA. Found procephoto.		Line of the	

principality (seesant pile e.g.)

The second second

to the first of the first

Status

Federal/

State

Cat 2/NA

Cat 2/NA

E/E

Occurs

in

Region

Yes

Yes

Yes

Current

Range

Occurs in central and southern

April through August.

Coastal California

Nests on sand dunes near San Antonio

Creek and Purisima Point. Present mid

California

Occurs

on

Buse

Possible

Possible

Yes

Common Name

California Black Rail²

California Least Tern^{2,3}

California Red-legged Frog³

Animals:					
American Peregrine Falcon ^{2,3}	Nest near aquatic habitats that provide prey (e.g., waterfowl).	Formerly nested on VAFB. Closest known nest near Avila about 30 miles north of VAFB. Young peregrines released at Gaviota Peak; no nesting	Yes	Possible	E/E
		has yet occurred. Peregrines are transient visitors to VAFB with sightings near the mouth of Santa Ynez River.			
Arroyo Toad ²	Sandy banks in willow thickets.	Coastal south central California. Occurs in upper Santa Ynez River. No data for VAFB.	Yes	Possible	Cat 2/NA
Belding's Savannah Sparrow ²	Salt marshes	Central and southern California. Observed south of VAFB	Yes	Possible	Cat 2/E
Brown Pelican ²	Near shore waters	Occurs along central California coast. Breeds on Anacapa Island in Channel Island; some breeding activities near Point Lobos, Monterey County. Roosts	Yes	Yes	E/E
		at Purisima Point, San Antonio Creek and Santa Ynez River Mouth. Present all year.	protono 1s		

Habitat

Tidal salt marshes

Perennial ponds and streams

Sand dunes, near water (i.e., food source)

9

Common Name	Habitat	Current Range	Occurs in Region	Occurs on Base	Status Federal/ State
Ferruginous Hawk ²	Open country	Fall and winter visitor to region	Yes	Possible	Cat 2/NA
Greater Mastiff Bat ²	Rocky outeroppings	Central and southern California	Yes	No	Cat 2/NA
Guadalupe Fur Seal ³	Near shore waters	Occurs as far north as Monterey Ray. Frequent sights on San Miguel Island during summer. Breeding activities on Guadalupe Island, Mexico.	Yes	Yes	T/T
east Bell's Vireo ²	Riparian	May be a transient in area during spring. Northern breeding limit is Santa Barbara Co. Does not breed on	Possible	Possible	E/E
		VAFB.			
Long-billed Curlew ²	Occurs in marshes, mudflats, sandbars, and along shorelines	Central and southern California. Occurs on VAFB beaches	Yes	Yes	Cat 2/NA
Morro Bay Blue Butterfly ^{2,3,4}	Occurs in association with lupine	Narrow coast corridor from Santa Barbara County to northern San Luis Obispo County.	Yes	Possible	Cat 2/NA
Smith's Blue Butterfly ^{3,4}	Closely associated with buckwheat.	Occurs along narrow coastal corridor in central California. Specimens from Monterey and Ventura counties. No specimens for Santa Barbara County, but may occur in region.	Probable	Possible	E/NA
Salt Marsh Skipper Butterfly ²	Occurs on coastal sand dunes in associa- tion with salt grass	Found along central and southern California coast. No records for VAFB.	Yes	Possible	Cat 2/NA
Southern Sea Otter ^{2,3}	Near shore waters, primarily where rocky outcrops occur.	Ranges from Pismo Beach, San Luis Obispo County north to Santa Cruz County. Introduced population to San Nicolas Island.	Yes	No	T/NA

Vandenberg Continued, Page 6 of 6

Common Name	Habitat	Current Range	Occurs in Region	Occurs on Base	Status Federal/ State
Spotted Bat ²	Rocky outeroppings	Central and southern California. No records for VAFB.	Possible	No	Cat 2/NA
Townsend Western Big-eared Bat ²	Rocky outeroppings	Occurs throughout California. No records for VAFB.	Yes	No	Cat 2/NA
Tri-colored Blackbird ^{2,3}	Found in dense tule stands, fields, and pastures.	Occurs in central and southern California.	Yes	Possible	Cat 2/NA
		Mark he is restricted at the ming			
Unarmored Threespine Stickleback ^{2,3}	Perennial stream	San Antonio Creek	Yes	Yes	E/E
Wandering Skipper Butterfly ²	Occurs on coastal sand dunes	Found along central and southern California coast. No records for VAFB.	Yes	Possible	Cat 2/NA
Western Pond Turtle ²	Perennial ponds and streams	Throughout California	Yes	Possible	Cat 2/NA
Western Snowy Plover ²	Coastal beaches	Coastal areas of California	Yes	Yes	Cat 2/E
Western Yellow-billed Cuckoo ²	Dense willow and riparian woodlands	Transient visitor to region	Yes	Possible	Cat 2/T
White-faced Ibis ²	Shallow grassy marshes	Central and southern California. Transient visitor to VAFB area.	Yes	Yes	Cat 2/NA

Notes:

¹Sources of information are: Smith 1976, Smith and York 1984, Munz 1974, and HDR 1980. ²U.S. Air Force 1987. ³Jones and Stokes 1981. ⁴Arnold, Richard 1987.

field characterization studies, condition classes were assigned to portions of the project routes. In poor condition stands, non-native species are abundant and essentially dominate the site. Stands in fair condition contain abundant non-native species, but native plants are dominants or co-dominants on the site. Stands in good condition are dominated by native species, but non-native species may occur occasionally or even be common. Stands in excellent condition are dominated by native plants and non-native species are scattered to rare. Detailed discussion of these portions of the Rail Garrison - Small ICBM study area follow.

RTF to MAB. Rail line and support road are proposed along Perigee Road from the RTF to the MAB (Figure 6). The existing roadway is narrow and the pavement is deteriorating. Dune vegetation is growing up to the edge of the road in most sections and grows in cracks in the road. Small-to-medium sized patches of iceplant (primarily Carpobrotus edulis) are common along the existing roadway. Veldt grass (Ehrharta calycina) is also common in portions of this route. The dominant native plants near the road include mock heather (Haplopappus ericoides), coyote bush (Baccharis pilularis), coastal sagebrush (Artemisia californica), lupine (Lupinus chamissonis), buckwheat (Eriogonum parvifolium), and cudweed aster (Corethrogyne filaginifolia). Federalcandidate species found in low densities along the road include San Luis Obispo monardella (Monardella undulata var. frutescens), black-flowered figwort (Scrophularia atrata), and Indian paintbrush (Castilleja mollis). These three species are much more abundant in other portions of the dune system. Blochman's butterweed (Senecio blochmaniae) is very common along this route. Perigee Road runs through three lowland areas which are described as wetlands on the base planning maps. The vegetation in these lowlands is not indicative of a wetland at or adjacent to the road intersections. A large

wetland, inhabited by willow (Salix lasiolepis), is encountered along the north side of Perigee Road near the MAB. The general habitat value along this road is rated good, where native species occur, to fair (possibly poor) where exotic species increase in abundance.

MAB to Test Pad 02. The study area along Rhea Road extends from the MAB to Test Pad 02. This road was constructed during the MX Flight Test Program and part of the revegetation effort occurred along it. A railroad track is proposed along the eastern edge of it. The dunes in the southern one-third of this area contain large quantities of veldt grass. These dunes served as a seed source for the veldt grass which invaded the revegetation sites in this area. Native plants common to this area include lupine, coastal sagebrush, Blochman's groundsel, mock heather, and sand verbena (Abronia umbellata). Rhea Road crosses a wetland in this area characterized by willow and dune rush (Juncus textilis). This section of Rhea Road supports poor to fair dune vegetation and moderate to excellent wetland vegetation. Veldt grass is common within 50 feet of both sides of the northern two-thirds of Rhea Road, but is not as dense as in the southern one-third. The native species previously mentioned are common and become dominant on the dunes away from Rhea Road. Federal-candidate species, San Luis Obispo monardella, which is abundant in patches along the road, and Indian paintbrush, which is less common, occur along the road. Also present are large-leaved wallflower (Erysimum suffrutescens var. grandifolium), Blochman's butterweed, and Lompoc monkey flower (Diplacus lompocensis). The general habitat along this section of Rhea Road ranges from fair, adjacent to the road, to good away from the road. The area around Test Pad 02 contains iceplant and veldt grass and is considered to be poor to fair habitat.

IRF to TAS. The study area extends through dune habitat between Rhea Road and El Rancho Oeste Road. Lupine, coastal sagebrush, Bochman's groundsel, mock heather, cudweed aster, and sand verbena are common to this area. Iceplant is also abundant in patches along the proposed route. San Luis Obispo monardella and Indian paintbrush occur on the dunes along the route. Blochman's butterweed and black-flowered figwort also occur in the area. One area north of the proposed IRF contains a large population of Indian Paintbrush. The habitat value from the IRF to the western edge of the TAS is rated good to excellent. The route section approaching El Rancho Oeste Road becomes dominated by beach grass (Ammophila arenaria) on hills and iceplant in lowlands. Lupine, mock heather and coyote bush remain common in these areas. The proposed location for the TAS ranges from native dune vegetation to areas dominated by beach grass and generally represents poor habitat. The proposed TAS location is adjacent to a willow-dominated wetland. A large lowland, indicated as a wetland on the base planning map, is located south of the proposed TAS site. This lowland is dominated by iceplant and only supports wetland vegetation (primarily willow) in a few small patches. With the exception of the willow patches, this wetland habitat is rated poor.

TAS to MAB. The study area extends south along El Rancho Oeste Road to a point near El Rancho Road. Iceplant is dominant along both sides of the road for much of its length. General habitat along this road section is poor. Several native species occur among the iceplant. The road bends around well developed wetland midway along this section. The wetland often has standing water and contains willow, rush, and cattails (Typha latifolia). The road also runs through an area of mesic scrub located approximately 400 feet south. This area supports a moderate population of the federal-candidate, blackflowered figwort. Other sensitive species found in the area include softleaved Indian paintbrush, small-fruited fiddleneck (Amsinckia spectabilis var. microparpa), large-leaved wallflower, and Blochman's butterweed.

The proposed rail and support road route extends westerly from E1 Rancho Oeste Road to the existing MAB. The area contains both dunes and dune swale wetlands. The lower elevations and wetlands in this area contain several sensitive species including the large-leaved wallflower (Erysimum suffrutescens var. grandifolium) and Blochman's butterweed. The slopes and tops of the dunes contain substantial populations of iceplant and veldt grass mixed with native dune vegetation. Therefore, the dunes in this area are rated as generally poor habitat, while the lowlands and wetlands are rated as good to excellent habitat. The rail line is proposed to run south of the MAB but will avoid a substantial wetland and a portion of the MX Flight Test Program revegetation area where a population of giant coreopsis (Coreopsis gigantea) was established.

Antenna Road South to TAS Turnoff and Launch Facility 24. The area along the northern portion of El Rancho Oeste Road is planned to be used for HML testing. This area runs through an area of grazed veldt grass and slender wild oat pasture. General habitat quality is poor and the area is not known to support any sensitive species. No sensitive plant species are known to occur in this grassland area. The slopes of Shuman Canyon, north of this grazing area, support an important community of Burton Mesa chaparral. This regionally rare vegetation type is considered to be a valuable biological community. This study area also includes 3 acres of land immediately west and downslope of launch facility 24 about 2 miles north of Antenna Road. This area is dominated by iceplant and represents poor general habitat.

Wildlife. The major habitat types found on the San Antonio Terrace of Vandenberg AFB (dune swale wetlands, stabilized dune/sage scrub, introduced grassland, and chaparral) support a variety of wildlife species; however, birds are most abundant (US Air Force n.d). Dune swales, dominated

by willow, wax myrtle, coyote brush, rushes, cattails, and sedges, support the most valuable wildlife habitat in the project area because of the food sources and cover they provide. Dune scrub is dominated by mock heather, dune lupine, California sagebrush, and cudweed aster. Coastal sage scrub is dominated by coyote brush, black sage, mock heather and California sage. These communities provide less cover and food sources for wildlife than the dune swales. The grassland areas provide the lowest quality wildlife habitat because of the minimal forage and cover provided by the veldt grass and wild oat that dominate the area.

The dune swale wetlands support the greatest number of bird species including the California quail (Callipepla californica), California thrasher (Toxostoma redivivum), Bewick's wren (Thryomanes bewickii), tree swallow (Tachycineta bicolor), common yellow-throat (Geothlypis trichas), mourning dove (Zenaida macroura), and white-crowned sparrow (Zonotrichia leucophrys) (US Air Force n.d.). Species more commonly found in the stabilized dune/sage scrub and chaparral habitats included the roadrunner (Geococcyx californianus), poor-will (Phalaenoptilus nuttalli), starling (Sturnus vulgaris), sage sparrow (Amphispiza belli), and lark sparrow (Chondestes grammacus) (US Air Force n.d.) The red-tailed hawk (Buteo jamaicensis), turkey vulture (Cathartes aura), western kingbird (Tyrannus verticalis), and savannah sparrow (Passerculus sandwichensis), occur primarily in grassland areas (US Air Force n.d.). A comprehensive list of birds commonly occurring in the study area is given in Table 3.1.1-2.

The dune swale wetlands and stabilized dune/sage scrub also provide habitat for several mammal species including the mule deer (Odocoileus hemionus), desert cottontail (Sylvilagus audubonii), brush rabbit (Sylvilagus bachmani), bobcat (Lynx rufus), gray fox (Urocyon cinereoargenteus), deer mouse

(<u>Spilogale gracilis</u>), and feral pig (<u>Sus scrofa</u>) (US Air Force n.d.). Species common to chaparral and the grassland areas include the California ground squirrel (<u>Spermophilus beecheyi</u>), and black-tailed jackrabbit (<u>Lepus californicus</u>) (US Air Force n.d.). Badgers are considered uncommon on Vandenberg AFB. The coyote (<u>Canis latrans</u>) may be found in all habitat types.

Reptilian species such as the western fence lizard (Sceloporus occidentalis), ring-necked snake (Diadophis punctatus), California legless lizard (Anniella pulchra), common kingsnake (Lampropeltis getulus), gopher snake (Pituophis melanoleucus), side-blotched lizard (Uta stansburiana), and western rattlesnake (Crotalus viridis) also inhabit the study area and may occur in any of the habitats (US Air Force n.d.). The dune swale wetlands provide habitats for a few amphibian species including the Pacific treefrog (Hyla regilla), western toad (Bufo boreas), and slender salamander (Batrachoseps attenuatus) (US Air Force n.d.). Invertebrate species that occur onbase are not well documented; however, two or three potentially new species of crickets (Centhophilus sp. and Stenopelmatus sp.) may also occur in the area (Cohn 1987).

No federally listed animal species are known to occur in the study area; however, several listed species and candidate species are known to occur in the region (Table 3.1.1-1). The unarmored threespine stickleback (Gasterosteus aculeatus williamsoni), which is listed as federally endangered, occurs in San Antonio Creek approximately 1 mile south of the study area (US Air Force 1987) The California least tern (Sterna antillarum brownii) is also federally listed as endangered and occurs on active dunes near the mouth of San Antonio Creek 1.5 miles southwest of the study area. Additional species federally listed as endangered, which may be transient visitors to the general

study area and Vandenberg AFB, include the least Bell's vireo (Vireo bellii pusillus) and the American peregrine falcon (Falco peregrinus anatum) (US Air Force 1987). The least Bell's vireo may use riparian zones in the study area during its migration. The American peregrine falcon is most likely to be found well outside the project area on Jalama Creek. The Smith's blue butterfly (Euphilotes enoptes) may also occur in the region in association with buckwheat, but has not been collected on Vandenberg AFB (Arnold 1987). Other federally listed species are known to occur in the region, but are not found in the study area. These species include the southern sea otter (Enhydra lutris), the Guadalupe fur seal (Arctocephalus townsendi), the brown pelican (Pelecanus occidentalis), which are associated with near shore marine habitats (US Air Force 1987).

Federal candidate species potentially occurring in the region include the spotted bat (Euderma maculatum), Townsend's western big-eared bat (Plecotus townsendii), greater mastiff bat (Eumops perotis), white-faced ibis (Plegadis chihi), ferruginous hawk (Buteo regalis), California black rail (Laterallus jamaicensis), western snowy plover (Charadrius alexandrinus), long-billed curlew (Numenius americanus), tri-colored blackbird (Agelaius tricolor), western yellow-billed cuckoo (Coccyzus americanus), Belding's savannah sparrow (Passerculus sandwichensis), western pond turtle (Clemmys marmorata), California red-legged frog (Rana aurora draytoni), arroyo toad (Bufo microscaphus), Morro Bay blue butterfly (Icaricia icarioides), wandering skipper butterfly (Pseudocopaeodes eunus), and salt marsh skipper butterfly (Panoguina panoguinoides).

3.1.2 Hydrological Resources

Hydrological resources include surface and groundwater hydrology. There are no major drainage channels within the San Antonio Terrace. Occasional

Bird Species Commonly Occurring in the Rail Garrison/Small ICBM Study Area on Vandenberg Air Force Base, California

Scientific Name	Common Name	Habitats
Agelaius phoeniceus	Red-winged Blackbird	DS
Amphispiza belli	Sage Sparrow	DS
Bubo virginianus	Great Horned Owl	DSW
Buteo jamaicensis	Red-tailed Hawk	G,DSW,DS,CSS
Callipepla Californica	California Quail	DSW,SDS,G,CS
Calypte anna	Anna's Hummingbird	DSW
Carduelis psaltria	Lesser Goldfinch	DSW,SDS
Carpodacus mexicanus	House Finch	DSW, SDS, CSS
arpodacus purpureus	Purple Finch	DSW, SDS, CSS
Chamaea fasciata	Wrentit	SDS,DSW,CSS
Chondestes grammacus	Lark Sparrow	SDS
Colaptes auratus	Common Flicker	DSW
Cathartes aura	Turkey Vulture	G,SDS,DSW,CS
Corvus brachyrhynchos	American Crow	SDS, DSW, G, CS
mpidonax difficilis	Western Flycatcher	DSW
uphagus cyanocephalus	Brewer's Blackbird	SDS
alco sparverius	American Kestrel	SDS
Geococcyx californianus	Road Runner	SDS
Geothlypis trichas	Common Yellowthroat	DSW
anius ludovicianus	Loggerhead Shrike	DSW
Melospiza melodia	Song Sparrow	SDS,DSW
Otus kennicottii	Screech Owl	DSW
Passerculus sandwichensis	Savannah Sparrow	SDS,G
Picoides nuttallii	Nuttall's Woodpecker	DSW
Pipilo fuscus	Brown Towhee	DSW,SDS,CSS
pipilo erythrophthalmus	Rufous-sided Towhee	DSW,SDS,CSS
Piranga ludoviciana	Western Tanager	DSW, SDS, CSS
saltriparus minimus	Common Bushtit	DSW, SDS, CSS
Sayornis nigricans	Black Phoebe	DSW
Sayornis saya	Say's Phoebe	DSW
Selasphorus sasin	Allen's Hummingbird	DSW
Sturnella neglecta	Meadowlark	G
turnus vulgaris	Starling	SDS
Tachycineta bicolor		DSW
hryomanes bewickii	Bewick's Wren	DSW,SDS,CSS
oxostoma redivivum	California Thrasher	DSW,SDS,CSS
/ermivora celata	Orange-crowned Warbler	DSW, SDS
/ireo gilvus	Warbling Vireo	DSW
Vilsonia pusilla	Wilson's Warbler	DCH
Zenaida macroura	Mourning Dove	DSW
Conotrichia atricapilla	Golden-crowned Sparrow	DSW, CSS

DSW - Dune Swale Wetlands SDS - Stabilize Dune Scrub G - Grassland CSS - Coastal Sage Scrub

wetlands pockets can be found along road shoulders and drainage structures when runoff is trapped.

Groundwater Hydrology

The San Antonio Terrace is underlain by the nonwater-bearing Sisquol formation containing mudstone, siltstone and shale (Fugro National Report 1978). There are some local pockets of unconsolidated sand. Groundwater flow would generally occur from the terrace north to Shuman Creek, west to the Pacific Ocean and/or south into the San Antonio Valley. Because of the impermeable shale underlying the more permeable unconsolidated deposits, ponding of water and flooding occurs locally during periods of high-intensity rainfall. These low areas are subject to fluctuating water levels that vary as the rainfall increases.

3.1.3 Air Quality

Air quality refers to the condition of the atmosphere as a result of emissions from natural and human sources and is typically measured with respect to health and visibility implications. This resource was the subject of study in Peackeeeper M-X Flight Test Program report (Section 1.2.2.1.5, pp. 70 through 83).

Vandenberg AFB falls within the South Central Coast Air Basin, which includes the counties of Santa Barbara, San Luis Obispo, and Ventura. The three Air Pollution Control Districts (APCDs) in the air basin cooperate in establishing emission control regulations.

Vandenberg AFB is currently in attainment for all contaminants and is subject to the regulations for control of these pollutants by the Santa Barbara County APCD. The Santa Barbara County Air Quality Management District (1982) has developed an Air Quality Attainment Plan (AQAP) with input by local

government agencies and groups including representatives of Vandenberg AFB, but specific control criteria have not yet been adopted. The focus of the plan was the attainment and maintenance of the federal standards for ozone and carbon monoxide. The AQAP presented a strategy for the attainment of the federal ozone standard by 1987 and the federal 8-hour moving average standard for carbon monoxide in 1982. Because of the uncertainties concerning the nature of the total suspended particulate (TSP) problem in the county, the AQAP did not present a strategy for attainment of the TSP standard.

The overall air quality at Vandenberg AFB can be characterized by all pollutant concentrations below minimum air quality standards except TSP and ozone, which exceed standards on certain occasions. Local emission sources are the controlling factor in establishing air quality. At Vandenberg AFB, emissions have been inventoried, but few air quality data are available.

All Vandenberg AFB generated emissions constitute less than 10 percent of north Santa Barbara County totals. Carbon monoxide from mobile sources and hydrocarbons, primarily evaporative losses from fuel storage, are the two largest emissions.

3.1.4 Noise

Ambient noise levels in the Vandenberg AFB region are generally low. The major noise sources include the aircraft missions, automobiles, trucks and trains. Vandenberg AFB is divided into three major areas: North Vandenberg AFB, the central cantonment area, and South Vandenberg AFB. Most of the construction and operational activities of the test program would occur at North Vandenberg AFB.

North Vandenberg AFB is made up to predominantly open lands with scattered missile operations and support systems. Launch facilities for the Minuteman,

Titan, and other missiles are located there, as are tracking, guidance and meteorological systems support. These missile facilities produce noise during launches and maintenance periods. A Vandenberg AFB noise study (Occupational and Environmental Health Laboratory 1986) recorded typical day-night noise levels ranging from $L_{\mbox{dn}}$ 44 to $L_{\mbox{dn}}$ 62 for areas located in proximity to a launch facility.

An additional source of noise associated with base operations is vehicular traffic. The major traffic arteries on the north base include Lompoc-Casmalia Road, Highway S-20, El Rancho Road, San Antonio Road, and Point Sal Road.

Ambient noise data are not available for these sources.

Trains of the Southern Pacific Railroad, which cross Vandenberg AFB, are a transient source of noise. An average of ten trains (2 Amtrak passenger trains and 8 freight trains) pass through the base every 24 hours. Railroad noise data on Vandenberg AFB have not been recorded. However, the Vandenberg AFB noise study indicates ambient noise levels for an area near the railroad, ranging from $L_{\rm dn}$ 43 to $L_{\rm dn}$ 64 with a high of $L_{\rm dn}$ 82.

The areas characterized as open lands on Vandenberg AFB include natural landscapes and recreational use areas. Since these lands are predominantly undeveloped and are often well removed from developed areas, their ambient noise levels are generally low. Natural areas that are considered noise sensitive, including the coastal zone, dune habitat, Santa Ynez River, and San Antonio Creek (Barka Slough), are located within the coastal and open lands. The sensitive areas are primarily associated with human activity, such as beach recreation in the coastal zone, or with sensitive wildlife, such as the least tern nesting sites in the coastal dune area.

Cantonment Area. Noise levels recorded for the base residential area produced levels ranging from L_{dn} 43 to L_{dn} 61, which are typical of a residential area. In addition, Table 3.1.4-1 depicts sound levels of common equipment and environmental conditions.

3.1.5 Geological Resources

Geological resources include aggregate and soils. Additionally, some oil deposits may be present under the San Antonio Terrace. This resource was the subject of two documents: a Fugro National Report (1978) and Peacekeeper (M-X Flight Test Program) (Volume III, Section 1.2.3.2, pp. 152 through 161).

Vandenberg AFB is located on the California coast north of Point Conception, where the coastline changes from south-facing to west-facing. San Antonio Terrace is located at the foot of the Casmalia Hills and gently slopes from an elevation of 50 feet at the coastline to 750 feet inland. Coastal topography is dominated by beaches, sand dunes, points with rocky shoals, sea cliffs, coastal terraces and mesas.

The soil at Vandenberg AFB consists of sand and silt that is readily erodible if not protected by vegetation or controlled drainage. The soil most sensitive to disturbance is on the stabilized dunes; this area will be avoided where possible.

3.2 HUMAN ENVIRONMENT

Principal socioeconomic factors were considered in the MX: Milestone II Final EIS, (Volume III, Section 1.2.2.3, pp. 100 through 110). Existing and projected socioeconomic baseline conditions for demographic, economic, housing, and institutional features were covered in that document and will not be repeated here. The construction job opportunities provided by the Space Transportation System (STS) and Peacekeeper test facilities have declined

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dBA*
                                                  -180-
LETHAL
                                                   -175-
                                                   -170-
                                                  -165-
                                                   -160-
                                                   -155-
                                                   -150-
                                                   -145-
                                      Sonic Boom
                                                  -140-
                                                   -135-
THRESHOLD OF PAIN
                                                   -130-
                             Jer Takeor' at 200'
                                                   -125-
                                                   -120-
                                                   -115- Discorneque
PHYSICAL DISCOMFORT
                               Motorcycle at 20'
                                                   -110-
                                                  -108- Jackhammer (Peak)
                                      Dump Truck
                                                         Power Mower
                                                   -104- Loader
                                                   -100-
                                                    -95- Newspaper Press
                            Freight Train at 50'
              Propeller Plane Fly-Over at 1,000'
                                                    -90- Food Blender
                                                    -85- Electric Mixer
                                                    -80- Washing Machine; Alarm Clock; Garbage
                           Freeway Traffic at 50'
                                                          Disposal; Electric Can Opener
                                                    -75- Office with Tabulating Machines
                         Average Traffic at 100'
                                                    -70-
                                                         Vacuum Cleaner; Portable Fan
                                                    -65- Electric Typewriter at 10'
                                                    -60- Dishwasher Rinse at 10'; Air
                                                          Conditioning Unit
                                                    -55-
                                                    -50- Normal Conversation at 12'
                            Light Traffic at 100'
                                                    -45-
                                                          Rural Residential Area
                                                    -40-
                                                    -35- Library
                                                    -30-
                                                    -25-
                                                    -20- Motion Picture Studio
                                                     -15-
                                                    -10- Leaves Rustling
                                                      -5-
THRESHOLD OF HEARING
```

The unit of sound is the decibel (dB). The loudness of sound is typically measured using a sound meter, the Assale, which corresponds closely to the way the human ear perceives sound. Therefore, the sound level for noise evaluations is frequently expressed in dBA.

TABLE 3.1.4-1 SOUND LEVELS OF COMMON EQUIPMENT AND ENVIRONMENTAL CONDITIONS

since their peak of 300 workers in 1982. With an existing labor force in the Santa Barbara/San Luis Obispo area of approximately 260,000 and an unemployed labor pool of 14,800 workers in 1986, the local force should be adequate. The STS construction force left the area because construction has been completed and the site closed down. There are no other construction jobs of STS or Peacekeeper size scheduled for Vandenberg AFB in the near future. There has been a reduction in the overall local area population. Based upon unemployment figures, there will be a sufficient construction labor pool in the local area to supply the 115 workers required for this project.

3.2.1 Cultural Resources

The cultural resources considered in this EA are prehistoric, historic, and Native American resources. Prehistoric resources predate written records and may range in size from an isolated artifact, to a site, to an entire geographic district. The more common site types on San Antonio Terrace are temporary camps and plant and animal gathering/processing sites. Historic resources consist of physical properties, usually related to Euroamerican occupations, that postdate written records. Common historic site types on San Antonio Terrace are campsites and habitations or facilities associated with the railroad or military. Native American resources on San Antonio Terrace include archaeological sites, burials, and plants and animals important to Native Americans for religious or heritage reasons. Native Americans associated with San Antonio Terrace are the Chumash, historically one of the politically and economically most complex of the California Native American groups.

Intensive investigations of the cultural resources of San Antonio Terrace began in 1979 with systematic surveys of the MX test areas. Between 1980 and 1982, a variety of investigations were conducted including survey, test excavations, and salvage excavations of sites to be affected by MX-related

construction. As a result of the MX cultural resource work in combination with previous cultural resource surveys, approximately 80 archaeological sites were identified on San Antonio Terrace.

As one of the few nearly intact coastal dune areas of the central California coast, San Antonio Terrace is particularly valuable for archaeological research in the region. It provides one of the best areas for studying the subsistance and settlement patterns on the central California coast.

In July and the first part of August 1987, a team of three archaeologists and a Chumash monitor surveyed the proposed test areas on San Antonio Terrace and launch facility 24 north of Shuman Canyon for cultural resources. Corridors 1000 feet wide were surveyed along proposed road and railroad routes as were the buffer areas around proposed facility construction areas (Figure 19). Eighteen previously unrecorded archaeological sites were identified and 27 previously recorded sites were reevaluated. A total of 45 archaeological sites occur within the present project areas. Of these, at least 16 are potential National Register properties but will not be affected.

The area west of launch facility 24 is proposed for use as an off-road HML test area. A 500-foot diameter area around the launch facility was surveyed for cultural resources, as was the area between the launch facility and Point Sal Road. The entire area appears to have been extensively disturbed by terracing. Iceplant covers the entire south and west sides of the survey area. Nevertheless, some scattered artifacts, shell fragments, and a large Monterey chert cobble were found near Point Sal Road. These materials (TI9) may represent an extension of SBa 512 across the road to the west. Further testing is necessary to determine the eligibility of the resources near launch facility 24.

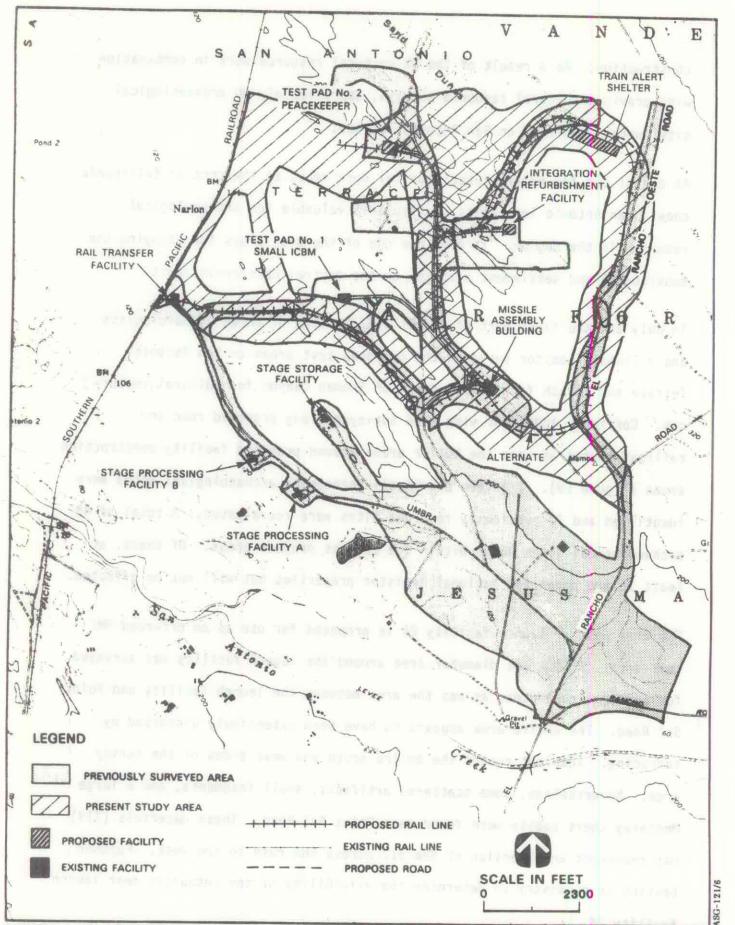


FIGURE 19 CULTURAL RESOURCES SURVEY AREAS, SAN ANTONIO TERRACE

Investigations of the HML off-road training area south of Shuman Canyon (Figure 20) revealed only two archaeological sites. The Quaternary Terrace has been heavily grazed except for the northern one-third where dense grass and brush contribute to very poor ground visibility. The extreme northeastern corner is a moderately steep, dense chaparral area. Cultural resources found in this area both in the southern edge of the proposed HML training area were a scatter of ceramic and glass fragments less than 50 years old and an isolated piece of abalone shell. Eligibility status is unknown without further testing. A previously recorded lithic scatter (SBa 1003) could not be relocated in spite of surveying the area intensively on two separate occasions. The originally mapped site area has been disturbed by construction along a buried telephone cable. A well-developed spring in the vicinity of the recorded cultural resources and excellent wetlands with willow trees are indicative of an ideal potential site area. No surface indications were found other than the abalone shell, but subsurface materials could be encountered during construction of the proposed test facilities.

Most of the proposed activities will occur in the center of the San Antonio Terrace dune field. This portion of the San Antonio Terrace contains 42 of the 45 sites in the study area. The dunes are primarily stabilized by vegetation but there is one area of active dunes at the north edge of the project area; however, no construction will occur in this location. Most of the archaeological sites and potential National Register sites occur in the San Antonio Terrace dunes.

Most sites on the San Antonio Terrace that appear eligible for the National Register are campsites that were repeatedly occupied. Typically, the sites contain Monterey chert flakes and tools, fire-cracked cobbles, groundstone, a variety of shells concentrated in middens, and sometimes charcoal, burned bone

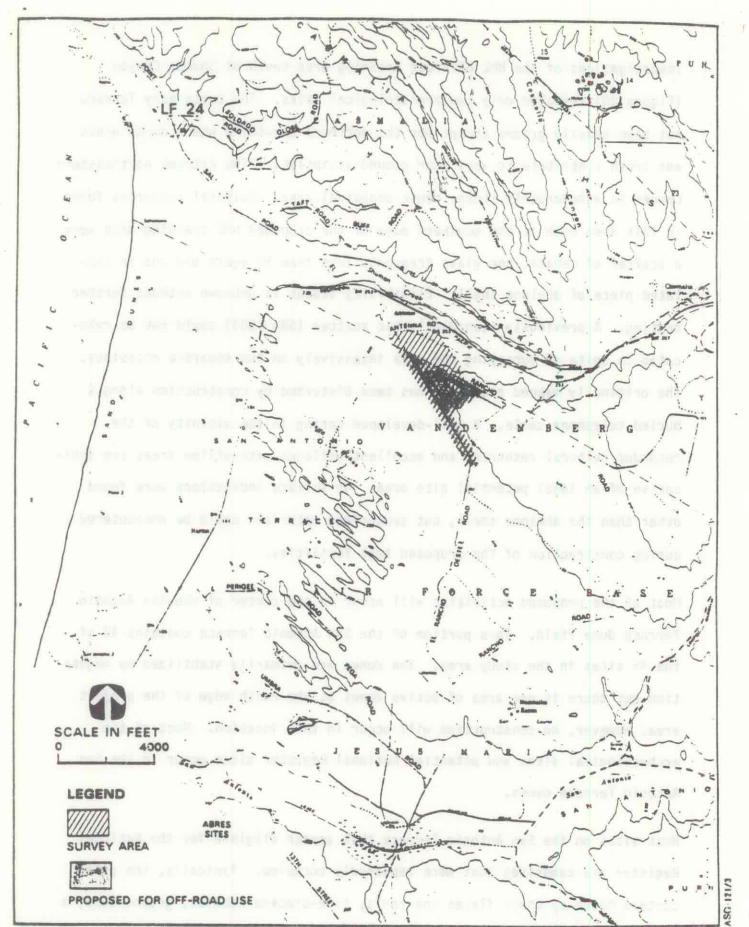


FIGURE 20 MOBILITY STUDY AREA

and/or darkened soil indicating hearths. The research potential of these sites derives from their relatively undisturbed nature and their representation of a larger population of threatened resources. Although the resources are located in dune areas, many deposits have been only minimally disturbed. Even those materials that have been displaced are still valuable resources for investigating prehistory and the post-depositional aeolian effects on archaeological sites.

Most archaeological sites in the area are associated with one of the numerous wetlands. Sites are usually found adjacent to willow and/or tule thickets and water where they are protected from the cool, prevailing ocean breezes; others are located on prominent hill and ridge tops overlooking the wetlands. Some of these sites may also have served as vision quest sites.

Some sites contain subsurface deposits. Temporary Site 14 was evident only in black dirt from animal burrows, which indicates that the site is completely buried. Most of the MX mitigation efforts were the result of encountering subsurface archaeological sites during construction. Construction around the MAB highlighted this problem with the cultural resources. Prior to construction, only one site was evident from the surface survey. However, after construction began, three completely buried sites were found. It is expected that buried cultural resources will be encountered during construction for this project as well. Impacts will be evaluated and mitigated in accordance with an approved Historic Preservation Plan (HPP).

Representatives of the Elder's Council, Santa Ynez Indian Reservation accompanied the archaeologists in the field to identify areas sensitive to the Chumash. Areas of concern to the Chumash on San Antonio Terrace include all archaeological sites, all burials, and some plant and animal species. The

wetlands containing willow (Salix lasiolepis), Indian Rush (Juncus textilis) and cattails (Typha sp.) are particularly important for the native resources they provide.

Pursuant to Section 106 of the National Historic Preservation Act, the Air Force has consulted with the California State Historic Preservation Office and the Advisory Council on Historic Preservation. The resulting Programmatic Agreement requires the Air Force to nominate the San Antonio Terrace as a National Register of Historic Properties district and to prepare a Historic Preservation Plan to manage the district (Appendix A).

Although specific terms of the plan have yet to be negotiated, additional evaluation of sites to be affected will be conducted through testing in advance of construction. Should the district approach not be implemented, the Air Force recognizes that additional field research will be necessary at most sites to determine their eligibility. Site treatment plans would also be prepared and reviewed on an individual basis.

3.2.2 Transportation

Transportation is defined as the availability of routes for the safe and efficient movement of persons and goods.

Roads II , broot stee selle teltent glateldens south , named alliquitions

El Rancho Road/Point Sal Road is the main route between the base and northern Vandenberg AFB. Casmalia Gate was washed out by flooding during the spring of 1983 but has been re-established as an egress from northern Vandenberg AFB. El Rancho road Gate at the Lompoc-Casmalia Road is currently the other egress from northern Vandenberg AFB. This route is used by personnel traveling from the main base to the test sites on Shuman Terrace and San Antonio Terrace, with the majority of vehicles being cars and light trucks.

El Rancho Deste Road is a gravel road that runs across the dunes of San Antonio Terrace. It is in fair condition but rarely used by base personnel since El Rancho Road is in much better condition and readily available. There are other roads of varying width and conditions that provide access to facilities on San Antonio Terrace and the main base. With only about 300 workers driving to the relatively isolated northern part of the base, no impact is expected on the roads or traffic conditions.

Rail Transportation

Southern Pacific Railroad main lines are adjacent to the Peacekeeper and Small ICBM processing area and the existing Minuteman launch facilities. The Air Force has constructed a spur from this main line to the RTF.

3.2.3 Land Use

Wandenberg AFB land uses reflect the primary function of the base as a missile launching and testing area. Land use is divided into three categories: launch areas, technical support areas, and base support areas.

Launch areas are located along most of the Vandenberg AFB coastline, and only military facilities and activities directly applicable to launch functions are allowed. The technical support areas act as buffers between the base support areas and launch areas, and the base boundaries and launch areas. The mixture of land uses has not interfered with the military requirements of the base. In the event of a conflict, military land uses would take the highest priority. This resource was studied for the MX Flight Test Program report (pp 189 through 235) and will not be duplicated within this assessment.

3.2.4 Utilities

Utilities include water supply and demand, energy, wastewater systems, and solid waste.

Water Supply. The water demand at Vandenberg AFB in 1986 was about 4500 acre-feet per year, less than 2 percent of Santa Barbara County's total demand. All of Vandenberg AFB water supplies are pumped from groundwater sources via 10 onbase wells. In 1981, the base pumped 5,076 acre-feet and during years of non-regulation the pump rate was much higher. The wells areadequate for present water demands and contain some extra capability for future base development; however, pumping is out of overdrafted basins. The base does not acquire any water from surface supplies but does obtain a small amount from contract sources for a remote radar site.

Energy. Power for Vandenberg AFB is provided primarily by offbase commercial utility companies. Electrical service is provided by Pacific Gas and Electric Company; natural gas is supplied by the Southern California Gas Company but is not available in the San Antonio Terrace area. Bottled gas will be used should a gas supply be required at proposed test sites.

Wastewater. Jopography and distance generally preclude connection to an existing wastewater treatment system. Consequently, remote sites use septic tanks with drain fields and related aeration plants, and it is expected that such facilities will be used at the IRF. Drain fields may require state permits.

Solid Waste. Onbase solid waste control includes a sanitary landfill, incinerators, a recycling program, and a building disposal program. The existing landfill is expected to operate to approximately 1992. Base plans exist for disposal of toxic and hazardous substances.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 NATURAL ENVIRONMENT

Standard construction practices that reduce or eliminate potential environmental impacts were assumed in assessing impacts. They include fugitive dust

control and equipment emissions control. It was also assumed that road and utility designs will maintain existing drainage gradients to minimize impacts to wetlands and riparian habitats. Standard mitigation-by-avoidance practices will be used to minimize impacts to sensitive ecological habitats. A mitigation and monitoring plan will be implemented to restore disturbed habitats to their predisturbance conditions and to replace lost wetland habitat. It is expected that this plan will be approved and implemented by 1 April 1988 or prior to construction.

4.1.1 Impacts to Biological Resources

The project will create disturbances in a regionally valuable dune habitat. Any intrusion or disturbance in a biologically important system such as the San Antonio Terrace dunes must be seriously considered from an ecosystem viewpoint. Based on the limited construction within identified sensitive areas, the overall project effects will be minor. Mitigation measures, especially avoidance of sensitive sites and revegetation, are also extremely important because of the biological value of the study area. These mitigation measures will greatly reduce the likelihood of creating corridors for invasion by exotic plant species. Control of exotic plant species along project corridors will also minimize effects that would result from dividing this dune habitat into small parcels of native habitat which would be less resistant to invasion by these exotic species. Implementation of revegetation efforts in areas currently dominated by exotics will result in general habitat improvement. Overall impacts resulting from this project are not expected to substantially diminish the value of the dune system.

Vegetation. Native dune vegetation, including several federal-candidate plant species, and some wetland habitat will be disturbed by construction of roads, rail lines, and several structures. Relatively undisturbed habitat, as well as habitat with varying degrees of invasion by introduced species

will be disturbed during construction. Disturbances are not expected to jeopardize any populations of federal-candidate plant species on San Antonio Terrace. Estimates of the numbers of sensitive plants expected to be lost during construction are presented in Table 4.1.1-1. Impacts in sensitive areas can be reduced through mitigations which include avoidance and revegetation.

This project will result in permanent removal of 24 acres of habitat and temporary disturbance of 68 acres of habitat. Where native vegetation disturbance occurs, the intrusion of iceplant and other exotic species becomes likely. Complete removal of native vegetation is assumed in all areas of direct surface disturbance. Of the total area disturbed by this project, iceplant currently dominates 1.8 acres and 89.9 acres have native dominants of which 3.0 acres are wetland habitats (based on vegetative and topographic indicators). Non-native species that may colonize areas of direct surface disturbance may also invade habitats adjacent to these areas, treating additional indirect impacts. Disturbance from construction of roads and rail lines along El Rancho Oeste Road is expected to be minor because much of this area is dominated by undesirable plants (although a few isolated populations of sensitive species occur within the exotics). Portions of the area to be disturbed along Perigee Road and Rhea Road support relatively undisturbed native vegetation, but the total area disturbed will be small and will occur primarily in previously disturbed locations. Cut and fill in these areas will be necessary, but topographic variation is relatively low in these locations. Activity along the road and rail routes between Test Pad #2 and El Rancho Oeste Road will disturb mostly native vegetation and topographic variation is great in portions of this route. The actual route will be sited to avoid excessive cut and fill in these sensitive areas to the extent possible. The revegetation effort will be very important in all

Table 4.1.1-1 Distribution and Estimated Density of Rare Plants on San Antonio Terrace, Vandenberg Air Force Base 1

Scientific Name (Common Name)	Estimated Number of Plants on San Antonio Terrace Study Area	Estimated Number of Plants per Hectare	Estimated Number of Plants Likely to be Disturbed as a Result of the Proposed Project ²		
Castilleja mollis (Soft-leaved Indian paintbrush)	2,1413	0.95			
Mondardella undulata var. frutescens (San Luis/Obispo curly- leaved monardella)	948,699	429.95	14,339		
Scrophularia atrata (Black-flowered figwort)	4,6774	55.93 (wetlands)	68		
	59,408 ⁵	61.60 (wetlands and mesic scrub)	137		
Senecio blochmaniae (Blochman's butterweed)	470,124	208.6	7,330		

Notes: Unless otherwise noted, the information presented in this table was taken from U.S. Air Force 1980a.

²Estimates are based on number of acres of suitable habitat likely to be disturbed (as determined by Tetra Tech, Inc.), multiplied times the estimated number of plants per acre.

Underestimated because of dormant condition of plants at time of survey.

Estimates for dune swale wetlands.

Estimates for dune swale wetlands and mesic scrub.

portions of this route. Much of the area to be disturbed by construction of the TAS is dominated by European beach grass which is of minor concern. The TAS will be sited in this area in accordance with appropriate Air Force safety distances and will avoid native vegetation west of the site. Construction of the IRF will disturb native vegetation and some welldeveloped mesic scrub and dune swale wetland habitats. Impacts to vegetation in the HML off-road testing area shown on Figure 20 will be minor because the area is dominated by introduced species. Erosion from the site construction could affect nearby wetlands, but this will be controlled by establishing an adequate buffer between the testing area and areas with native and wetland vegetation, and by implementation of revegetation plans. The area near and on the slopes of Shuman Canyon (covered with Burton Mesa chaparral) will be avoided. Impacts at launch facility 24 will also be minor because the area is covered by exotic iceplant. Impacts to federalcandidate plant species in the project area will not threaten their continued existence on San Antonio Terrace because these species are distributed throughout the terrace.

Although major advances have been made in recent years in the area of dune revegetation, successful revegetation will require careful planning and monitoring. Information about revegetation is available to guide the restoration effort for this project. The following general guidelines will be followed. Where native vegetation is dominant, the topsoil will be removed and stockpiled for redistribution during revegetation, existing plants will be mulched and mixed with this topsoil, the topsoil mixture will serve as a seed source, and additional seeding with locally collected seeds will be performed where appropriate.

Areas with substantial quantities of exotic species such as iceplant or veldt grass will be treated on a case-by-case basis. Stockpiling of topsoil from one of these areas would likely result in the re-establishment of exotic plants and will therefore be removed from San Antonio Terrace. It would be better to rely on seeding the area with native species from a nearby seed source than attempting to remove exotic species either physically or with appropriate herbicides. A formal mitigation plan will be prepared by the Air Force describing details of the revegetation plan for the project area.

Wetlands. Wetlands on San Antonio Terrace were defined for this impact analysis as areas that are inundated or saturated by water at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions as described in the US Army Corps of Engineers wetland delineation manual (US Army Corps of Engineers 1987). This definition conforms to the concepts described in Cowardin et $^{/}$ al (1979). The disturbance figures for wetlands presented (3.0 acres total) are based on wetland boundaries defined by actual vegetation or the presence of surface water or hydric soils during the year. Minor wetland disturbance will occur along Rhea Road where the rail route will be adjacent to the present road which dissects a wetland and along El Rancho Oeste Road where iceplant has taken over much of the probable wetlands. These disturbances are not expected to greatly reduce the value of the respective wetlands. A portion of a willow-dominated wetland is located near the proposed TAS. This structure will be sited on a ridgetop to the south (dominated by beach grass) or in the lowland to the south (dominated by iceplant) to avoid the disturbance of this wetland. Another large wetland occurs along El Rancho Oeste Road where the road bends around the wetland. Construction of the railroad track and support road will avoid this wetland. A rail line will be placed south of the MAB but would avoid a large wetland by keeping adjacent to the existing fence

surrounding the MAB. Overall impacts to wetlands along these routes will be minor. The Air Force has accomplished Section 404 coordination with the Los Angeles District Corps of Engineers. The proposed work will not create significant impacts to existing wetlands on the San Antonio Terrace because only an estimated 3.0 acres will be filled. No impacts to San Antonio Creek or Shuman Creek are expected because project-related disturbance will not occur near these aquatic habitats. A formal mitigation plan will be prepared describing plans for restoration and replacement of wetlands damaged or destroyed by this project. This mitigation plan will provide for a 2:1 replacement of damaged wetlands and describe in detail the expected quantity and quality of the replacement wetlands.

Wildlife. Implementation of the proposed project will cause impacts on wildlife, including habitat removal, disruption of daily/seasonal activities, displacement to adjacent habitats, increased stress during critical periods (e.g., times of reproduction), and increased mortality. Construction activities (e.g., cut and fill, construction of new roads and rail lines, and upgrading existing systems) will generate the majority of impacts and will permanently disturb 24 acres. However, this small amount of disturbance will have a minor effect on the overall carrying capacity. Impacts such as disruption of daily/seasonal activities, displacement, and increased stress will be temporary and will be eliminated or significantly reduced at the end of construction. This will result in a small increase in population density in the vicinity of the disturbance; however, this increased density is likely to produce only minor increases in mortality and disruption of behavior. Some wildlife species are expected to return to those habitats temporarily disturbed during construction (Golden 1980).

Some minor impacts (e.g., temporary disturbance of daily feeding activities and displacement) are expected to occur during the operations phase of the

project. These impacts will result primarily from increased human activities, traffic, and noise in areas previously undisturbed. Some wildlife species are expected to become accustomed to these increased activities.

This project will not jeopardize the continued existence of populations of plant or animal species of concern to federal or state authorities. No federally listed animal species are known to inhabit the study area; however, the least Bell's vireo and the American peregrine falcon (both federally endangered) may occasionally occur in the study area as transients (US Air Force 1987). Construction activities (e.g., operation of heavy machinery, increased noise levels, and increased human presence) may cause temporary impacts on these two species (e.g., displacement and disruption of behavior). Any impacts that occur would be minor because they would be of short duration. The likelihood of these two species being affected is low since the least Bell's vireo and American peregrine falcon are expected to be infrequent visitors to the study area (US Air Force 1987). The endangered Smith's blue butterfly, which feeds on buckwheat (Eriogonum parvifolium), may occasionally occur in the project area; however, no specimens have been found on Vandenberg AFB (Arnold 1987). Other federally listed species known to occur in the general region but which would not be affected by the project because of habitat restrictions, include the southern sea otter, Guadalupe fur seal, brown pelican, and California least tern. Construction activities may affect some federal candidate species (e.g., western yellow-billed cuckoo, western pond turtle, California red-legged frog, tricolored blackbird, California rail, arroyo toad, ferruginous hawk, and long-billed curlew). No adverse impacts are expected for these species nor will the regional populations be affected. Additional federal-candidate species that may be affected include the Morro Bay blue butterfly, wandering skipper butterfly, and salt marsh skipper butterfly. The Morro Bay blue butterfly feeds on lupine and may be affected by

the project because lupine is common throughout the project area. There are no records of the Morro Bay blue butterfly occurring on Vandenberg AFB (US Air Force 1987). The wandering skipper and salt marsh skipper butterflies may occur in the general region in association with salt grass on coastal sand dunes. The potential for affecting these two species is low because salt grass is not abundant in the project area. Five additional federal-candidate species, the spotted bat, Townsend's western big-earred bat, greater mastiff bat, Belding's savannah sparrow, and western snowy plover, occur in the general region. They are not likely to be affected by the project because no suitable habitats occur in the project area.

4.1.2 Hydrological Resources

Surface Hydrology. No significant impacts are expected. During construction there will be temporary interruptions to drainage flows. Existing gradients will be maintained so there will be no long duration impacts. Where alteration or construction of culverts is required, temporary interruptions to drainage flow may occur. However, construction is expected to occur during the dry, summer months to minimize impacts. Since there are no major drainage channels on San Antonio Terrace and work will not take place on areas that slope to San Antonio or Shuman creeks, no impacts are expected.

4.1.3 Air Quality

Air pollutants that will be emitted to the atmosphere during the construction of test facilities for Small ICBM and Peacekeeper in Rail Garrison will be short-term and temporary. Short-term air pollution emissions will consist primarily of fugitive dust from areas cleared for construction and from construction-related motor vehicles, including heavy-duty construction equipment. Fugitive dust will be generated by construction activity (land clearing, blasting, ground excavation, cut-and-fill operations, etc.), and HML

test operations. Fugitive dust is defined as particulate matter that becomes airborne because of natural causes and/or human activities.

Fugitive dust emissions vary with time as the source activity varies. One important factor contributing to the error in fugitive dust emissions is the uncertainty in the parameters that scale the emission rates to a specific site, namely, the silt and moisture content of the material and the extent of the source. In spite of these uncertainties, estimates were made for fugitive emissions resulting from construction.

Fugitive dust emissions from construction activity are proportional to the area of land being worked and the level of construction activity. The EPA has estimated an approximate emission factor for construction activity to be 1.2 tons per acre of construction per month of activity (EPA 1976). The total facility construction area is approximately 7 acres. The total fugitive dust emissions will be approximately 18.43 tons from construction of facilities. The fugitive dust emissions from road construction and railroad spur line will be approximately 123.6 tons and 139.6 tons, respectively.

The fugitive dust emissions from construction facilities and road construction occur in one calendar year and railroad spur line construction will occur in another calendar year. This emission estimate does not take into account dust control mitigation measures that will be instituted at the construction site as part of the site's environmental control and management plan. These measures will substantially reduce the amount of fugitive dust and hence significantly decrease the impact on air quality. The fugitive Total Suspended Particles (TSP) emissions shown in Table 4.1.3-1 are depicted for 50-percent control using water or a dust pallitive as a control measure.

TABLE_4-1.3-1

TSP Emissions Resulting From Rail Garrison/ Small ICBM Test Facility Activities

(Tons/Year)

Construction Activity	1988	1989
Support buildings and road construction	71	Deputing a 2
Railroad spur line		69.8

Compared to the northern Santa Barbara County TSP emissions, the construction activity fugitive dust emissions from Vandenberg AFB are not significant. These fugitive dust emissions will cease to exist once the construction is completed.

Heavy diesel-powered construction equipment, trucks, and other motor vehicles related to construction activity will emit pollutants such as sulfur dioxide, particulates, nitrogen oxides, carbon monoxide, and hydrocarbon. Because of the low activity resulting from construction at Vandenberg AFB, it is assumed that these pollutants will not be significant.

4.1.4 Noise

Noise levels generated by equipment during construction will attenuate due to air and ground absorption and changes in terrain. However, because of the transient nature of construction activities, noise from this equipment will not be a problem. No construction or test activities will occur in the vicinity of residences or sensitive receptors. Missile launch-induced noise cannot be avoided. Peacekeeper missiles will be launched from the TAS or Test Pad 02 while Small ICBM will be launched from Test Pad 01 or launch facility 24. There is no history of complaints about launch noise and a September 1984

report verifies that missile noise does not affect the federally endangered least tern breeding (Atwood 1984). Therefore, no significant impact is expected.

4.1.5 Geological Resources

Some excavated soil may not be suitable as fill material and will be disposed of in fill areas as determined by the Base Civil Engineer. No oil or mineral resources will be affected. Suitable fill material will be obtained from the area or an offbase site and will not affect Vandenberg AFB borrow areas. Erosion of disturbed surfaces will be controlled by matting and revegetation. Fill material imported will be held to a minimum so as to prevent introduction of foreign plant species. Any offsite fill material will be sanitized to prevent introduction of alien plant species.

4.2 HUMAN ENVIRONMENT

The brief influx of additional construction workers is not anticipated to cause socioeconomic impacts. The influx of about 110 people is typical of any normal onbase construction-related activity and is typical of the normal fluctuation in base contractor population. The present Vandenberg AFB work force is about 12,000. The technical support will include about 340 persons. Approximately 140 of these personnel will be transferred from existing programs and 200 would be additional personnel. Assuming 65 percent of the new personnel are accompanied by their families, population inmigration into the area would amount to approximately 480 persons. Inmigrating personnel would be expected to locate principally in the Lompoc and Santa Maria areas. This inmigration would represent less than 0.5 percent of the current population in the Lompoc/Santa Maria area. Assuming the increased demand for local public services (law enforcement, health services, schools, recreational services, as examples) is proportionate to the increase in population, these additional demands would not represent a significant impact.

This project is expected to enhance local job opportunities by supplying jobs, both direct and indirect, to some of the people that worked on the Space Transportation System Program and the Peacekeeper test facilities which have been completed. Approximately 200 secondary jobs would be created in the local economy and personal income gains would be about \$12.7 million annually (Table 3.2-1).

TABLE 3.2-1

Employment and Income Impacts
Peacekeeper in Rail Garrison and Small ICBM Testing Programs
Vandenberg AFB

	1988	1989	1990	1991	1992	1993
Direct Jobs				and to	no i za iko	crant be
Construction	110	60				
Operations		170	340	340	340	340
Subtotal	110	230	340	340	340	340
Indirect Jobs	320	260	200	200	200	200
Total Jobs	430	490	540	540	540	540
Income (mills. 86\$)	\$10.8	\$11.9	\$12.7	\$12.7	\$12.7	\$12.7

Notes: Assumes facility construction cost of \$60 million and annual procurement requirements during testing phase of approximately \$1.9 million per year.

4.2.1 Cultural Resources

For the purposes of the National Historic Preservation Act, effects (impacts to the sites) which would otherwise be considered adverse can be considered not adverse if the appropriate mitigation in the form of data recovery is completed (36 CFR 800.9c). Similarly, a Finding of No Significant Impact can be made under the National Environmental Policy Act (NEPA) if mitigation measures are imposed by statute or regulation (FR 46(55):18038), such as the National Historic Preservation Act. Thus, under both NEPA and the National Historic Preservation Act impacts will not be significant if the appropriate mitigation measures are carried out.

A total of 36 sites have been recorded in the corridors identified for the proposed testing program. Of these, 5 were destroyed or badly damaged by MX construction (Chambers Consultants and Planners 1984), leaving 31 to be formally evaluated. At least 9 sites in the program area are potentially significant (eligible for the National Register of Historic Places). Because the final configuration of the proposed test facilities has not yet been determined, it is not possible to state the exact number of potentially eligible sites which might be affected. However, it will certainly be fewer than the total because within the 1,000 foot corridors, only an easement 50 feet wide will be affected.

Based upon presently available plans, 4 potentially eligible sites may be affected by construction: SBa 1682, SBa 1683, SBa 594 and TT4. SBa 1682 and SBa 1683 were recorded and evaluated during MX facilities construction in the early 1980s. At that time, proposed facilities were relocated to avoid impacting the sites. Current plans for the railroad route from the IRF to the TAS indicate that these sites may be affected.

Site SBa 594 has been previously disturbed by road construction and by excavation associated with the placement of a fiber optics cable. However, it is unclear what proportion of the site has been affected, or where the new construction will occur. Based on presently available plans, it appears that the rail line will occur in disturbed portions of the site, but effects are not known at this time. Site TT4 is south of the proposed railroad route to the MAB. The only suitable track location is about 30 meters north of the site as it is presently known at the surface. Six subsurface shovel test probes were excavated between the site and the proposed track alignment and no buried materials were observed. It seems unlikely that the sites will be affected, but subsurface cultural deposits could be encountered during more extensive testing prior to construction.

Impacts to cultural resources are most likely to occur as a result of construction disturbance to subsurface sites not yet identified. During previous MX facilities construction near the MAB and Test Pad 02, four significant archaeological sites were found subsurface after grading had begun. None of these sites could have been predicted from surface indications. SBa 1179, located in the center of the road to Test Pad 02, was found during grading for the road. This campsite was significant and consisted of tools, approximately 1500 flakes, and a shell midden with fire-cracked rock. Three sites near the MAB were also exposed during construction. Sites SBa 1170, SBa 1173 and SBa 1177 were all camps containing projectile points, tools, flakes, fire-cracked rock, shell, animal bone, and charcoal. Impacts to these sites were mitigated through data recovery.

One site found during the present survey was seen only because cultural material had been brought up from below the surface by rodents. This site, TT14, is probably more extensive subsurface that is indicated by the few rodent burrows containing artifacts. Because significant subsurface sites were encountered during previous construction and during recent surveys, it is expected that additional sites will be encountered subsurface during proposed construction and that impacts will require mitigation through data recovery.

Although significant buried subsurface sites could be encountered anywhere within the project area, several areas have a high potential to contain undiscovered subsurface remains. The proposed TAS location is in an area of extreme topographic relief which will require extensive grading. Subsurface cultural materials are likely in this area. The active dune area contains site SBa 1201, a very large area containing flakes. Additional cultural material may be buried beyond the boundaries of this site as defined during surface survey. However, the active dune area may not be affected because current plans call for the railroad route to be located south of this area.

It is the Air Force's intention to avoid impacts to all significant (eligible for the National Register of Historic Places) cultural resources through rerouting or redesign of the proposed facilities. However, should it not be possible to design a workable configuration that would avoid all eligible sites or should potentially eligible cultural resources be encountered during construction, mitigation through data recovery will be conducted, as required by Section 106 of the National Historic Preservation Act and its implementing regulations (36 CFR 800). These regulations require consultation with the SHPO and ACHP as specified in 36 CFR 800.4-800.6 for eligible resources and in 36 CFR 800.11 for resources discovered during construction. Consultation will lead to an agreement with these agencies which stipulates that eligible sites will be avoided when possible, that all construction will be monitored by a qualified archaeologist, and that impacts to any eligible sites which cannot be avoided will be mitigated through data recovery such as surface collection, mapping, and/or hand excavation of a sample of the site. The details of site evaluation and treatment will be embodied in the HPP for the San Antonio Terrace Archaeological District (see Programmatic Agreement, Appendix A). Should the district approach not be carried out, site testing, evaluation and treatment will proceed on a case-by-case basis.

These mitigation measures may include, but are not limited to:

- Monitoring by the environmental contractor's archaeologist and
 Vandenberg AFB staff archaeologists, during the staking of locations for all proposed facilties to ensure that all significant sites are avoided during construction.
- 2. Monitoring by a qualified archaeologist and appropriate Native

 American representatives, as well as a Vandenberg AFB archaeologist, of all

 ground-disturbing activities to ensure that significant cultural resources are
 identified and properly treated during construction.

3. Data recovery following methods prescribed in an approved Historic Preservation Plan (HPP) of a sample of cultural material from eligile sites which cannot be avoided.

4.2.2 Transportation

Roads. During mobility dash scenarios, El Rancho Road, Point Sal Road, El Rancho Oeste Road, Umbra, and Perigee Roads will be restricted to base traffic. This is normally done during Peacekeeper or Minuteman launches and do not pose a problem to the driving public. No adverse impact on traffic is expected for these roads. Based on the mobility tests conducted at Yuma Proving Grounds from 1986 to 1987, which involved paved roads, no structural damage was noted. Should the road experience unusual wear, the surface will be topped. No adverse impact is expected.

The renovation of El Rancho Road and possibly other routes for HML and other special-purpose vehicles will provide a benefit to all people using that road.

Rail Transportation. Grade crossing construction for Rail Garrison track will be coordinated with the ground safety officer at the base. Vehicular traffic movement over the on-grade crossings during train movements must be closely coordinated with the 6595 Test Group. No significant impact to railroad operations is expected. Should the HML cross the Southern Pacific Railroad main line during mobility dash operations, this will be coordinated with the Southern Pacific Railroad stationmaster. The overall impact on railroad operations should be negligible. Transportation of construction and test equipment to Vandenberg AFB will be accomplished using state and county public roads. The added increment to the current transportation network will cause a negligible impact.

4.2.3 Land Use

All work will occur in base approved and identified launch or technical areas and conform to land use patterns for the areas. Current grazing activities within the HML mobility area will be halted. No impact is expected.

Recreation. Over 20 state and county parts totalling over 11,000 acres are located within a 1-hour drive of the base. These facilities offer a range of activities including overnight camping, boating, field sports, fishing, and hiking trails, and presently have surplus space. At this time, however, there are inadequate recreational vehicle parking facilities within the region to respond to recreational demand. In addition, the base itself offers various recreational services. Population inmigration into the region would be limited mostly to the operations personnel which would be required by the testing program (approximately 300 workers). No impacts on recreational resources in the region would be caused by these inmigrants.

4.2.4 Utilities

<u>Water Supply.</u> Drinking water for construction and operations people will be supplied in portable coolers. Construction water requirements will be low and water will be supplied in portable tanks or lines from the MAB. New supply lines will be installed to the IRF, TAS and Test Pad O2 within road rights-of-way. The production wells have adequate capacity for present water demands and contain some extra capacity for future base development, however, pumping is out of overdrafted basins. Only negligible impacts on groundwater supplies will be expected.

Energy. Adequate power supplies are available at the existing facilities.

The total base use is less than the available supply. Any new pole lines will be located within roadway rights-of-way. There will be no impact on energy resources.

Wastewater. Construction crews and missile installation crews currently use portable sanitary facilities and this practice is expected to continue. Permanent facilities such as the IRF will use septic tanks and leach lines. Therefore, no impacts are expected on wastewater treatment facilities. Effluent from missile canister wash downs, depending on chemical composition, would be handled as a hazardous waste in accordance with adopted base plans. No impacts are expected.

Solid Waste. Construction spoils may slightly increase the rate at which the sanitary landfill areas will reach full capacity, and therefore, may cause a low impact. Spoils will include some concrete and dirt. The concrete can be a benefit to the base because it can be used as riprap to control water-caused erosion. Small amounts of waste oils and solvents resulting from the project will be disposed of in accordance with accepted base practices for hazardous wastes. No other toxic or hazardous substances will be generated from this project. Since local approved facilities are more than adequate to handle this material, no impacts are expected.

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In the 25-year operating history of the Minuteman ICBM systems, the Air Force has never experienced a mishap leading to a fire or explosion. Further, the technical advances to the components and operating procedures for the systems ensure that the proposed systems will operate safely.

This section outlines the system safety program used in the development, deployment, and operation of the two systems. Following this, highly unlikely, but theoretically possible mishaps are examined. For purposes of this analysis, conservative risk assumptions were made. A mishap could result in a

solid-propellant, liquid-propellant, or a combined solid/liquid propellant release. This could affect one or more of the following environmental factors: air quality, biology, water/soils, and human health safety.

Department of Defense (DOD) Instruction 5000.36, System Safety engineering and Management and Air Force Regulation 800-16, Air force System Safety Program, establish the requirement for the identification and elimination or control of hazards in the weapon system. The DOD MIL-STD-882B, System Safety Program Requirements, and MIL-STD-1574A, System Safety Program for Space and Missile Systems, provide specific controls that are implemented in the Peacekeeper/Rail Garrison and Small ICBM Integrated System Safety Program which is tailored to the specific characteristics of both systems. These system safety engineering and management controls are applied throughout the functional life of the weapon system from concept development through decommissioning.

5.2 AIR FORCE CONTINGENCY PLANS

Although mishaps involving the Peacekeeper/Rail Garrison and Small ICBM weapon system that could affect the public are highly unlikely, the Air Force has contingency plans for response.

5.2.1 Potential Hazard System

Strategic Air Command Regulation 355-3 "ICBM Potential Hazard System" (PHS) contains procedures for responding to potential hazards involving an ICBM. This regulation is implemented when situations exist that are not covered by Air Force Technical Orders. The ICBM PHS provides a communications network to be used during emergency actions. The PHS is designed to resolve hazardous situations occurring at the local unit level by rapidly establishing centralized control at Strategic Air Command Headquarters. A recovery plan to cover

mishap response, decontamination, and cleanup will be developed by appropriate technical experts prior to deploying the system. Experts from Air force Logistics command, Air Force Systems Command, other governmental agencies, and aerospace contractors will participate as required. The PHS will be implemented whenever the local unit requests assistance. These procedures exist for Minuteman and Peackeeper and will be in place for Small ICBM when it becomes operational.

5.2.2 <u>Disaster Preparedness Program</u>

Air Force Regulation 355-1, US Air Force Disaster preparedness Program, requires that each installation commander ensure that operations orders, plans, directives, and similar documents contain proper disaster preparedness instructions and guidance. At Vandenberg Air Force Base, Operations Plan 355-1 is in place will be implemented in the event of a mishap involving the missile system. This operations plan includes detailed procedures and checklists to ensure the safety of life and property in the event of a mishap. The Air Force would take charge of the mishap scene. Planning efforts for coordination with civil authorities include training sessions, joint exercises, and establishment of mutual-aid agreements.

5.3 ABNORMAL CONDITIONS

The Peacekeeper in Rail Garrison and Small ICBM weapons systems are designed to operate safely and securely under both normal and severe operating conditions. Strict compliance with established operational and maintenance procedures will be maintained. As part of this Environmental Impact process, the weapons system design and operations planning communities of the Air Force postulated those conditions which, while highly unlikely, were nonetheless foreseeable and would present the greatest risk of damage to the environment and human health.

- 5.4 POTENTIAL MISHAPS PEACEKEEPER IN RAIL GARRISON

 Given the design of the Peacekeeper in Rail Garrison, the design

 and structure characteristics of the missile launcher car and system

 deployment at existing Minuteman facilities and testing at Vandenberg AFB,

 the following cases were developed and analyzed:
- 5.4.1 <u>Case (1)</u>. The missile launch car (MLC) while being transported around the test tract at Vandenberg AFB, is hit by a fuel tanker truck. The impact speed is in excess of 70 miles per hour (mph), the missile launch car is struck at its most vulnerable point (that offering the least missile protection), total tanker weight is in excess of 80,000 pounds and is fully loaded with 8,000 gallons of gasoline.
- 5.4.2 Case (2). An airplane collides with the MLC while it is in the igloo at Vandenberg AFB.
- 5.4.3 Case (3). The train while undergoing stop-move-stop operations is derailed, the locomotive catches fire and the flames engulf the MLC and it catches fire.

Since nuclear weapons will not be carried, the mishap possibilities will not address nuclear accidents.

5.5 POTENTIAL MISHAPS - SMALL ICBM

The analysis of safety as it applies to the Small ICBM at Minuteman sites has been addressed in the DEIS, Small ICBM, Malmstrom AFB, Montana, dated June 1987, and is incorporated herein by reference.

5.6 MISHAP PROBABILITIES

All three potential mishaps represent what are intuitively highly unlikely conditions. However, because of a lack of empirical data to support this position, it is assumed in this analysis that the incidents actually occur.

5.6.1 Case (1)

Case (1) postulates a fuel tanker truck collision with the missile launch car resulting in a fire. As local roads on Vandenberg AFB are not conducive to high speed travel and railroad crossings are few, it is hard to conceive of this situation occurring except through deliberate act. Since access to Vandenberg is strictly controlled, the chance of that deliberate act occurring is also remote.

5.6.2 Case (2)

Case (2) postulates an airplane colliding with a missile launch car while it is at Vandenberg. Although the missile launch car would be housed in a protective structure, for purposes of conservative analysis, impacts were not reduced for this protection. Further, an aircraft would have to be of sufficient weight (approximately 80,000 pounds) and carry fuel sufficient to sustain a burn long enough to ignite the solid propellants of the ICBM.

Based on the expected number of aircraft mishaps, the likelihood that a mishap would involve a missile launch car location is extremely small (on the order of one chance in one billion).

5.6.3 <u>Case (3)</u>

Case (3) postulates a train derailment during move-stop-move operations resulting in the MLC coming to rest in close proximity to the burning locomotive. This scenario is considered unlikely since train movements will be strictly monitored and speed controlled. The likelihood of a locomotive fire in a derailment is remote, and the chance of the MLC ending up near the locomotive in a mishap is very low.

5.7 ENVIRONMENTAL CONSEQUENCES

5.7.1 Environmental and Human Health Effects

This section describes the environmental and human health effects of a mishap scenario. The effects of scenarios (1), (2) and (3) are likely to be essen-

tially similar. This discussion treats only propellant releases because the test missiles will not contain nuclear weapons.

5.7.2 Incidents Involving Solid Propellants

Propellant Properties. The Peacekeeper will carry approximately 170,000 pounds of solid propellant. The solid propellant used in this missile is a Class 1.1 explosive proprietary mixture containing the following compounds (and their approximate proportions): HMX (cyclotetramethylenetetranitramine) (48%); aluminm (elemental) (18%); proprietary plasticisers (12%); ammonium perchlorate (9%); TMEN (or BTTN) (6%). After curing the solid propellant has a physical consistency resembling that of a hard pencil eraser.

Although the propellant will not spontaneously ignite, it will ignite when exposed to temperatures exceeding 500°F for more than 60 seconds.

Release Scenarios. The following sections examine the environmental impacts on air quality, water, and biological resources that could result from the release of solid propellant and its combustion products into the environment. Mishap scenarios Case (1), (2) and (3) could result in a fire involving only the solid propellant. Some or all of the propellant would burn rapidly (within a few minutes). If an explosion results from the fire, burning propellant dispersal is likely.

Consequences of Explosion. There is a remote possibility that a fire could ignite the solid missile stages causing a propellant explosion. This explosion would be primarily contained by the MLC. However, debris and burned and unburned propellant could be scattered in a circular radius of 2,000 to 3,000 feet. In addition, small secondary fires are possible, depending on locational factors. Within this radius, damage to both flora and fauna is likely. Injury or loss of life to personnel may occur. The effects of

overpressure would extend to approximately 3,425 feet from the mishap. Structures within the 2,000-to-3,425 foot range would be subject to window breakage but would not receive other structural damage from overpressure effects. The primary dangers to biota and people would be flying glass from broken windows and possible ear damage resulting from overpressure.

Air Quality Impacts. The release of particles and vapors from a propellant fire results in a plume (cloud) that remains close to the ground. The major components of the cloud are hydrogen chloride (HC1) and carbon monoxide (C0), which are potentially toxic. Other components include water (H $_2$ 0), nitrogen (N $_2$), carbon dioxide (C0 $_2$), and hydrogen (H $_2$), which are essentially harmless. Hydrogen chloride gas from burning propellant may collide with and coat the aluminum oxide (AL $_2$ 0 $_3$). These toxic particles are transported downwind and gradually settle causing vegetative spotting and minor acidification of surface water supplies. Rain could scavenge residual HC1 from the cloud, producing acidic precipitation.

The concentration of aluminum oxide particles in the centerline of the down-wind plume was simulated by the ADPIC model. Concentrations at ground-level receptors (2 meters), 100, 200, and 300 meters above ground were calculated 15,30 and 60 minutes after the initiation of the propellant burn. Since the propellant was presumed to be totally burned in 20 minutes, the plume moves downwind as a "puff," exhibiting both lateral and vertical dispersion.

Ground-level exceedance of federal air quality standards for particulates occurs 1 kilometer (km) from the mishap 30 minutes after the initiation of the burn. Sixty minutes after the burn, the particulate concentration at the same location is well within standards. This demonstrates the "puff" character of the plume at this distance from the mishap. Particulate ground-level concentrations exceed federal standards in an area 7 km (4.4 mi) to 25 km (15.5 mi) from the mishap at various times after the burn initiation.

Particulate ground-level concentration exceeding federal standards are likely to occur at distances exceeding 25 km (15.5 mi); however, simulation by the model of ground-level concentrations beyond 25 km (15.5 mi) is less accurate due to terrain-induced turbulence and dispersion. Ground-level receptors would be exposed to particulate concentrations exceeding federal standards for periods of time greater than 1 hour.

The major nonparticulate constituents of the cloud, such as carbon monoxide, water, nitrogen, carbon dioxide, and hydrogen would be dispersed by the plume and would create no significant impacts. As was demonstrated in the Morton Thiokol study (1978), it is likely that hydrogen chloride generated during the burn would be released as a vapor, some of which would coat the particles and be transported downwind. Gaseous hydrogen chloride not adsorbed to the particles would be trnasported downwind. It would react with other combustion products and naturally occurring compounds. If the mishap occurs during fog, rain, or temperatures near the dew point, gaseous hydrogen chloride may become chemically associated with water vapor, forming potentially serious acidic rain.

Water Quality Impacts. Minor surface water quality impacts may occur from the settling of aluminum oxide particles coated with hydrogen chloride and the fallout of hydrogen chloride vapors from the cloud. Surface water quality impacts from the exposed solid propellant are not expected since it is essentially insoluble in water. Potential minor local impacts could result from the runoff of motor fuels, lubricants, and fire-extinguishing materials from the mishap into surface waters.

Potential impacts on groundwater resulting from the mishap scenario are highly dependent upon local surface, subsurface, and deep groundwater system characteristics. Minor impacts could result from the movement of motor fuel,

lubricants, and fire-extinguishing chemicals from the surface into shallow aquifers.

Biological Impacts. Minor adverse impacts on natural vegetation and animals could occur. Localized impacts on biota resulting from fire, fire extinguishing chemicals, and mechanical cleanup are anticipated. Local biota may be affected from deposition of hydrochloric acid aerosol droplets which may result in spotting of vegetative growth; plant mortality; or burning of eyes, throat, skin, etc., for some animals.

Depending upon the geographical location, chemical constituency, and extent of surface water systems, aquatic biological systems downwind from the mishap could be affected by the deposition of aluminum oxide particles and the subsequent hydrochloric acid from those particles by rain or dew. Such impacts would be insignificant.

Human Health Effects. The downwind particulate plume would result in air quality exceedances, at various time intervals, at locations from 1 to 25 km from the mishap. Should the mishap coincide with outdoor human activities, persons exposed to the particulate could expect health effects, the severity of which would depend upon the particulate concentration, the length of exposure time, and other factors. Human health effects could include respiratory impairment; burning of eyes, throat, or nose; and skin irritation.

5.7.3 Incidents Involving Liquid Propellant

<u>Propellant Properties</u>. About 1400 pounds (approximately 90 gallons) of hydrazine are carried in the PBV. Hydrazine is a colorless, oily liquid that fumes upon exposure to air at normal atmospheric pressure and is water soluble. Its vapors can be ignited at 126°F (flashpoint). For comparison purposes, the flashpoint of gasolilne is minus 50°F. Liquid hydrazine can be

ignited at various temperatures depending upon the surface. For example, it can ignite at 75°F on a surface containing rust and at 313°F on a stainless steel surface. When hydrazine fumes come in contact with the metal oxides of copper, lead, and manganese, they may also ignite spontaneously. Hydrazine forms highly combustible mixtures with air in concentrations of 4.7 to 100 percent at 212°F. Hydrazine vapors are slightly heavier than air, and depending upon meteorological conditions, they may flow along the ground and fill depressions.

Release Scenario. In either mishap scenario Case (1), Case (2), or Case (3), the hydrazine tank could crack allowing the release of liquid hydrazine and hydrazine vapors. If an ignition source such as a diesel fuel fire is present, the hydrazine could burn. If an ignition source is not present, a small pool of hydrazine could form. Vapor release continues until either remedial action or total evaporation of the fuel occurs.

Consequences of Explosion Scenario. Liquid hydrazine is not a detonatable compound. Hydrazine vapor mixed with air could be ignited by sparks, causing deflagration (instantaneous combustion), but would not cause extensive damage to the missile system.

Air Quality Impacts. Adverse environmental impacts on local air quality in the immediate area are likely to occur after a mishap. Depending upon the conditions of the system after the mishap, hydrazine spilled from the tank may form a vapor or be ignited.

According to a computer model simulation done, if all of the hydrazine is spilled into a liquid pool, the pool should totally evaporate in 18 minutes. The resulting vapor plume would travel downwind. The shape of the plume at

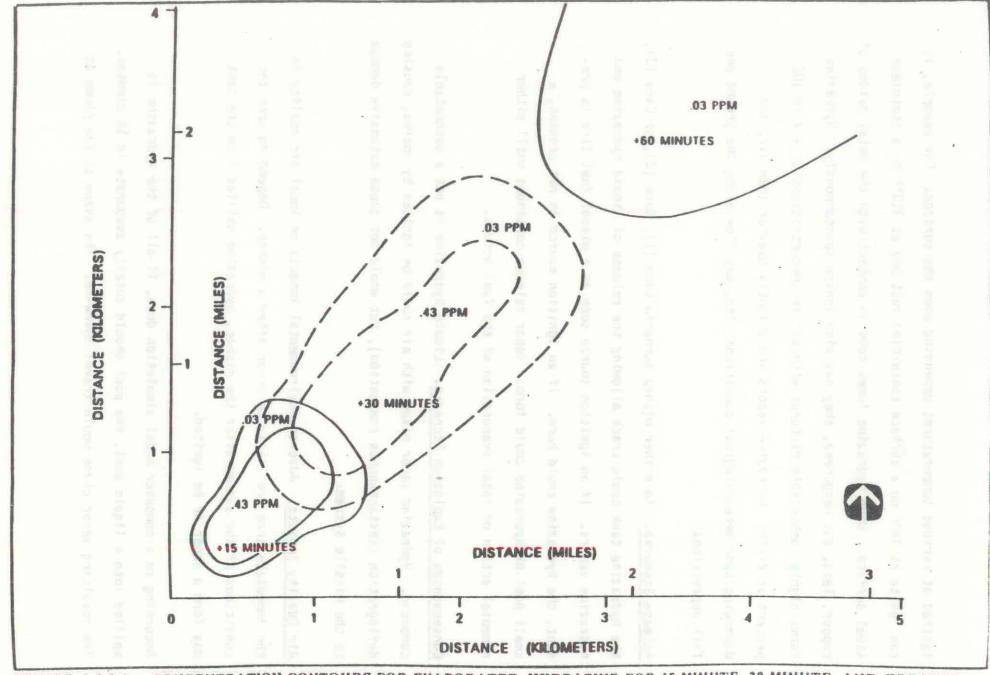


FIGURE 5.3.2-1 CONCENTRATION CONTOURS FOR EVAPORATED HYDRAZINE FOR 15 MINUTE, 30 MINUTE, AND GREATER THAN 60 MINUTE TIME PERIODS

15, 30 and 60 minutes after the instantaneous release is shown in Figure 5.3.2-1. The value of the outermost contour of each plume is 0.03 ppm of hydrazine per cubic meter of air at 2 meters (approximately 6 feet) above ground level. The concentration of hydrazine at ground level in the interior portion of the plume lessens with time because of the lateral and vertical diffusion of hydrazine.

A hydrazine fire would produce nitrogen oxides, carbon dioxide, water, and unburned hydrazine. Since it is likely that a fire would involve more than just hydrazine, the rising hot exhaust cloud would be expected to contain other chemicals, particulates, and dust from the mishap site. The resultant downwind plume is likely to specifically resemble the plume described for the solid propellant burn. Any unburned hydrazine in the plume is likely to react with other compounds and be effectively reduced to zero concentration.

water Quality Impacts. Although hydrazine could be released into surface water resources near the mishap site, the results of the modeling indicate that a liquid pool of the propellant would rapidly evaporate. Liquid hydrazine flowing away from the mishap would rapidly evaporate from the wetted area which, because of the small volumes of hydrazine involved, is not expected to exceed a 20-square-meter area. Hydrazine could reach surface water resources if diluted with water during an emergency response to the mishap. If mixed with water, the rate of evaporation would decrease due to the dilution of the hydrazine and chemical reactions within the aqueous solution. Although aqueous solutions of hydrazine have been shown to be toxic to biological resources, the small amount involved in this scenario is not to likely to result in concentrations high enough to have any long-term toxic effects.

Percolation of hydrazine fuel into the soil following a spill would be limited due to the small quantity (90 gallons) of hydrazine present in the system. This small quantity coupled with the rapid evaporation rate predicted in the spill modeling, is likely to result in a small amount of hydrazine movement into the soil. Organic material in the soil is likely to react with hydrazine, breaking it down and effectively reducing the concentration of hydrazine in the soil. In addition, hydrazine is likely to evaporate from the surface of the soil once the pool of liquid existing above the soil has been evaporated. Because the hydrazine that has not evaporated would strongly adsorb to soil components, cleanup following a spill would be relatively simple.

Biological Impacts. The downwind movement of the vaporized hydrazine plume could have impacts on local biotic systems. The concentration and areal extent of the hydrazine vapor are dependent on the size of the leak and physical condition of the hydrazine at the mishap site, the wind speed and direction, relative humidity, the difference between the hydrazine pool temperature and ambient temperature, and the vertical mixing height.

A spill of hydrazine can be expected to kill or seriously damage vegetation in the limited area of the spill proper. Any resulting fire would kill grasses, herbs, shrubs and small trees, and burn the trunks and lower branches of large trees. Impacts on vegetation outside the immediate spill or fire area are unlikely due to the small quantity of hydrazine involved and the soil absorptive characteristics of this chemical.

Any animals exposed to sufficiently high concentrations of hydrazine vapor could experience burning of eyes, skin, and respiratory tract, and possibly systemic effects, as described for humans in the following section. These

concentrations would be limited to a small area because of the small quantity of hydrazine involved.

Human Health Effects. Hydrazine is a strong irritant and may cause eye damage and respiratory tract inflamation. It can be absorbed through the skin, ingested, or inhaled. The 30-minute, short-term public exposure limit (SPEL) for hydrazine is 20 parts per million (ppm); SPEL is a standard index of human exposure tolerance. Under certain wind and atmospheric stability conditions, combined with a rapid hydrazine evaporation rate (1 pound per minute), the 20-ppm level might be experienced as far downwind as 1,500 feet.

People exposed to 20 ppm of hydrazine might experience irritation of eyes, nost, throat, or lunds, as well as dizziness and nausea. On short exposure, systemic effects involved the central nervous system. Resultant symptoms include tremors. As a comparison, a level of about 1,000 ppm is considered immediately hazardous to life. If hydrazine contacts the skin or eyes, it can cause severe local burns and dermatitis. In addition, it can penetrate skin to cause systemic effects similar to those produced when hydrazine is inhaled. If inhaled, the vapor causes local irritation of the respiratory tract, followed by systemic effects. Upon exposure to higher concentrations, convulsions and death may follow.

Although the toxicological results of hydrazine exposure are documented, the value of the "safe" dose of hydrazine is expressed in many different ways. The Air Force has used a value of 20 ppm hydrazine as its 30-minute SPEL as established by the National Academy of Sciences Committee of Toxicoloty. This SPEL is used to create the boundaries of a toxic corridor in which emergency evacuation areas downwind of inadvertent spills can be calculated.

Model simulations demonstrate that for this mishap scenario, a person located in the centerline of the plume would be exposed to concentrations of hydrazine exceeding both the 0.03 ppm-15 minute National Institute of Occupational Safety and Health (NIOSH) recommendation as well as the 20 ppm-30 minute SPEL guideline. Persons exposed at these levels could exhibit the previously described symptoms.

For this study, the 0.03-ppm of the hydrazine plume was chosen to define the outer limit of the plume for the exposure level of concern. If a person is exposed to concentrations of hydrazine greater than 0.03 ppm for a time exceeding 15 minutes, it is assumed for the purposes of this study that they ahve been exposed to a dose of hydrazine exceeding NIOSH recommendations. The population situated along and immediately to each side of the centerline of the plume would be exposed to much greater concentration of hydrazine. Those persons closer to the origin of the spill would be exposed to greater concentrations than those farther from the origin, as the concentration of hydrazine would be reduced by turbulence, dispersion, and reactivity.

5.7.4 Combined Releases

There is a possibility that both the liquid and solid propellants could be released or burned simultaneously in a mishap. It is assumed that fire and/or explosion would accompany the mishap and result in complete involvement of the missile. Debris and fire could then be spread over the area immediately surrounding the site.

The environmental impacts likely to result from a combined burn would be equivalent to the impacts previously described for the solid propellant, except that the contribution of the hydrazine would moderately increase the toxicity of the burning propellant cloud. There is little potential for

additional environmental impacts resulting from the combined propellants, their reaction products, or combustion products.

5.8 Conclusions

Two extremely unlikely assumptions, that a mishap occurs and that it results in the release of the total amount of available propellant, have been the basis of this analysis. Given these assumptions, the predicted environmental impacts would only be significant within the immediate mishap area with the exception of air quality. No significant impacts on water quality can be expected. Biological impacts would be similarly restricted to the nearby mishap area. Finally, human health impacts could be severe but only within the immediate mishap vicinity.

Col Kenneth Kolthoff Lt Col William Denton Jim Johnson Richard Nichols Gail Staba Mike McElligott Maj William McDonald Brad Hageman Col Lee Heinz Mike Tulloss Lt Jamie Cassidy-Curtis John Satrom Hal Kemp 1Lt Frank McCall Maj John G. Grelick Capt Jay Staub Lt Col Mike Donnelly Lt Richard Haller Maj David Peters Capt J. Dillard Maj Jim Gaines Lt Col Harry Lanclos Lt Ken Hirlinger Larry Frierman Karen Vander Meyden Louise Lynch Bob Richardson Bob Stano Capt Julie Rice David McPhee John Gill (Preparer) Dr John R. Sabol Dr Ted Turk Diane Concannon Dr Richard Kramer William P. Magdych Curtis Nickerson Randy Arnold Diana Christensen David Carmichael Nancy K. Kaufman Elaine Schneider Lt Col J. Wills Capt Tom Herring Dr Raj Mathur Fred Hickman Mark Peterson

Roy Duggen

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Preservation
State Historic Preservation Office
Los Angeles District, Corps of
Engineers
HQ SAC, Det 2
State Coastal Commission
State Coastal Commission
HQ SAC/XPQM
AFOTEC/OCBL

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COORDINATION

Corps of Engineers

Clean Water Act, a national Section 404 Permit was issued to AFRCE-BMS on 8 September 1987 with conditions (copy attached).

Coastal Zone Management

Reviewed project with them on 9 Oct 1987 and will submit EA, FONSI, and negative declaration. See Memorandum for Record.

Fish and Wildlife Service

Letter of 17 Aug 1987 submitting T&E list.

Submitted revised wetlands map to Seattle, Washington office showing results of field survey. Attached draft letter of 19 Oct 1987.

SHPO and Council

Provide base (ET) with draft of documentation to be submitted to both agencies.

County of Santa Barbara

CALTP. Attached Santa Barbara permit and our documentation plus AF Form 813. the two addresses you expect became our test the commencers, which

INTERNAL USAF

HO BMO

Peacekeeper in Rail Garrison and Small ICBM DOPAA coordination.

Vandenberg

EA. FONSI and other documents.

Letter to BMO regarding test requirements.

HQ SAC

Letter regarding test requirements.

DEPARTMENT OF THE ARMY LOS ANGELES DISTRICT CORPS OF ENGINEERS



P.O. BOX 2711 LOS ANGELES, CALIFORNIA 90053-2325

08 SEP 1987

Office of the Chief Regulatory Branch

Col. Walter T. Whitman III U.S. Air Force Commander, AFRCE-BMS, Building 520 Norton AFB, California 92409

Col. Whitman III:

This is in reply to your application (No. 87-275-RC) dated July 27, 1987 for a Department of the Army Permit to fill approximately 1.6 acres of wetlands in the construction of 3.0 miles of roads and 8.5 miles of railroad tracks.

Regulations for our permit program, published in the Federal Register, include Part 330 - Nationwide Permits (see the enclosure). Your proposed activity is covered under the nationwide permit for discharges of dredged or fill material into non-tidal rivers, streams and their lakes and impoundments, including adjacent wetlands, that are located above the headwaters, which would cause the loss or substantial adverse modification of between one and 10 acres of such waters, and where the Division Engineer determines that an individual permit is not required. (Section 330.5 (a)(26)(i)).

As long as you comply with conditions on the attached sheet and the nationwide permit conditions (Section 330.5 (b)), an individual permit is not required.

This letter does not convey any property rights, either in real estate or material, or any exclusive privileges. Also, it does not authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations, nor does it obviate the requirement to obtain State or local assent required by law for the activity.

If you have any questions please call Dick Clark, Regulatory Branch, at (213) 894-5606 any workday before 3:00 PM.

Sincerely,

Tifford Rader

Acting Chief, North Coast Section

Regulatory Branch

Enclosure

SPECIAL CONDITIONS

- a. That the permittee shall develop a mitigation plan to offset the filling of 1.6 acres of wetlands due construction fills. This plan shall be approved by the U.S. Army Corps of Engineers (USACOE), Regulatory Branch prior to the placement of fill in the designated wetlands. This plan shall contain 1) a detailed map showing the areas to be filled and impacts to existing wetlands; 2) a detailed plan for the creation of wetlands at a 2 acres gained for every 1 acre lost ratio, including densities and species to be maintained; 3) a detailed map and plan the removal of non-native vegetation with the replanting of existing native vegetation; and 4) a minimum of five years of monitoring these replanted areas to assure invasion of non-native plants do not occur and the replanting as needed to maintain planned densities. This plan shall also include a draft plan in the restablishment of the pre-construction environmental habitat after the support structures, roads, and railroad tracks are no longer needed.
- b. That the permittee shall forward to the USACOE, Regulatory Branch all reports on the cultural resources impact study program.
- c. That the permittee shall have an archeologist, approved by the USACOE, Regulatory Branch observing all phases of the construction of the roads, railroad tracks, and support facilities where movement of soil is involved. This archeologist shall have the authority to halt construction if he/she determines cultural resources may be impacted.

PART 330-NATIONWIDE PERMITS

Sec.

330.1 General.

330.2 Definitions.

330.3 Activities occuring before certain

330.4 Public notice.

330.5 Nationwide permits.

330.6 Management practices. 330.7 Notification procedures.

330.8 Discretionary Authority.

330.9 State water quality certification.

330.10 Coastal Zone Management consistency determination.

330.11 Nationwide permit verification. 330.12 Expiration of nationwide permits.

Authority: 33 U.S.C. 401 et seq.; 38 U.S.C. 1344; 33 U.S.C. 1413.

§ 339.1 General.

The purpose of this regulation is to describe the Department of the Army's (DA) nationwide permit program and to list all current nationwide permits which have been issued by publication herein. A nationwide permit is a form of general permit which may authorize activities throughout the nation. (Another type of general permit is a "regional permit" and is issued by division or district engineers on a regional basis in accordance with 33 CFR Part 325). Copies of regional conditions and

modifications, if any, to the nationwide permits can be obtained from the appropriate district engineer. Nationwide permits are designed to allow certain activities to occur with little, if any, delay or paperwork. Nationwide permits are valid only if the conditions applicable to the nationwide permits are met. Failure to comply with a condition does not necessarily mean the activity cannot be authorized but rather that the activity can only be authorized by an individual or regional permit. Several of the nationwide permits require notification to the district engineer prior to commencement of the authorized activity. The procedures for this notification are located at \$ 330.7 of this Part. Nationwide permits can be issued to satisfy the requirements of section 10 of the Rivers and Harbors Act of 1899. section 404 of the Clean Water Act, and/or section 103 of the Marine Protection, Research and Sanctuaries Act. The applicable authority is indicated at the end of each nationwide permit.

§ 330.2 Definitions.

- (a) The definitions of 33 CFR Parts 321-329 are applicable to the terms used in this Part.
- (b) The term "headwaters" means the point on a non-tidal stream above which the average annual flow is less than five cubic feet per second. The district engineer may estimate this point from available data by using the mean annual area precipitation, area drainage basin maps, and the average runoff coefficient, or by similar means. For streams that are dry for long periods of the year, district engineers may establish the "headwaters" as that point on the stream where a flow of five cubic feet per second is equaled or exceeded 50 percent of the time.
- (c) Discretionary authority means the authority delegated to division engineers in § 330.8 of this part to override provisions of nationwide permits, to add regional conditions, or to require individual permit application.

§ 330.3 Activities occurring before certain

The following activities were permitted by nationwide permits issued on July 19, 1977, and unless modified do not require further permitting:

(a) Discharges of dredged or fill material into waters of the United States outside the limits of navigable waters of the United States that occurred before the phase-in dates which begar. July 25. 1975, and extended section 404 jurisdiction to all waters of the United

(14) Minor road crossing fills including all attendant features, both temporary and permanent, that are part of a single and complete project for crossing of a non-tidal waterbody, provided that the crossing is culverted, bridged or otherwise designed to prevent the restriction of, and to withstand. expected high flows and provided further that discharges into any wetlands adjacent to the waterbody do not extend beyond 100 feet on either side of the ordinary high water mark of that waterbody. A "minor road crossing fill" is defined as a crossing that involves the discharge of less than 200 cubic yards of fill material below the plane of ordinary high water. The crossing may require a permit from the US Coast Guard if located in navigable waters of the United States. Some road fills may be eligible for an exemption from the need for a Section 404 permit altogether (see 33 CFR 323.4). District engineers are authorized, where local circumstances indicate the need, to define the term "expected high flows" for the purpose of establishing applicability of this nationwide permit. (Sections 10 and 404)

(15) Discharges of dredged or fill material incidental to the construction of bridges across navigable waters of the United States, including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills provided such discharge has been authorized by the US Coast Guard as part of the bridge permit. Causeways and approach fills are not included in this nationwide permit and will require an individual or regional Section 404

permit. (Section 404)

(16) Return water from an upland, contained dredged material disposal area (see 33 CFR 323.2(d)) provided the state has issued a site specific or generic certification under section 401 of the Clean Water Act (see also 33 CFR 325.2(b)(1)). The dredging itself requires a Section 10 permit if located in navigable waters of the United States. The return water or runoff from a contained disposal area is administratively defined as a discharge of dredged material by 33 CFR 323.2(d) even though the disposal itself occurs on the upland and thus does not require a section 404 permit. This nationwide permit satisfies the technical requirement for a section 404 permit for the return water where the quality of the return water is controlled by the state through the section 401 certification procedures. (Section 404)

(17) Fills associated with small hydropower projects at existing reservoirs where the project which includes the fill is licensed by the Federal Energy Regulatory Commission (FERC) under the Federal Power Act of 1920, as amended; has a total generating capacity of not more than 1500 kw (2,000 horsepower); qualifies for the short-form licensing procedures of the FERC (see 18 CFR 4.81); and the district or division engineer makes a determination that the individual and cumulative adverse effects on the environment are minimal in accordance with § 330.7 (c)(2) and (d). (Section 404)

(18) Discharges of dredged or fill material into all waters of the United States other than wetlands that do not exceed ten cubic yards as part of a single and complete project provided the material is not placed for the purpose of stream diversion. (Sections 10 and 404)

(19) Dredging of no more than ten cubic yards from navigable waters of the United States as part of a single and complete project. This permit does not authorize the connection of canals or other artificial waterways to navigable waters of the United States (see Section 33 CFR 322.5(g)). (Section 10)

(20) Structures, work, and discharges for the containment and cleanup of oil and hazardous substances which are subject to the National Oil and Hazardous Substances Pollution Contingency Plan. (40 CFR Part 300), provided the Regional Response Team which is activated under the Plan concurs with the proposed containment and cleanup action. (Sections 10 and 404)

(21) Structures, work, discharges associated with surface coal mining activities provided they were authorized by the Department of the Interior, Office of Surface Mining, or by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977; the appropriate district engineer is given the opportunity to review the Title V permit application and all relevant Office of Surface Mining or state (as the case may be) documentation prior to any decision on that application: and the district or division engineer makes a determination that the individual and cumulative adverse effects on the environment from such structures, work, or discharges are minimal in accordance with §§ 330.7 (c) (2) and (3) and (d). (Sections 10 and 404)

(22) Minor work, fills, or temporary structures required for the removal of wrecked, abandoned, or disabled vessels, or the removal of man-made obstructions to navigation. This permit does not authorize maintenance dredging, shoul removal, or river bank snagging. (Sections 10 and 404)

(23) Activities, work, and discharges undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another federal agency or department where that agency or department has determined, pursuant to the CEQ Regulation for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR Part 1500 et seq.), that the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and the Office of the Chief of Engineers (ATTN: DAEN-CWO-N) has been furnished notice of the agency's or department's application for the categorical exclusion and concurs with that determination. Prior to approval for purposes of this nationwide permit of any agency's categorical exicusions, the Chief of Engineers will solicit comments through publication in the Federal Register. (Sections 10 and

(24) Any activity permitted by a state administering its own Section 404 permit program for the discharge of dredged or fill material authorized at 33 U.S.C. 1344(g)-(l) is permitted pursuant to section 10 of the Rivers and Harbors Act of 1899. Those activities which do not involve a section 404 state permit are not included in this nationwide permit but many will be exempted by section 154 of Pub. L. 94-587. (See 33 CFR 322.3(a)(2)). (Section 10)

(25) Discharge of concrete into tightly sealed forms or cells where the concrete is used as a structural member which would not otherwise be subject to Clean Water Act jurisdiction. (Section 404)

(26) Discharges of dredged or fill material into the waters listed in paragraphs (a)(26) (i) and (ii) of this section except those which cause the loss or substantial adverse modification of 10 acres or more of such waters of the United States, including wetlands. For discharges which cause the loss or substantial adverse modification of 1 to 10 acres of such waters, including wetlands, notification to the district engineer is required in accordance with section 330.7 of this section. (Section 404).

(i) Non-tidal rivers, streams, and their lakes and impoundments, including adjacent wetlands, that are located above the headwaters.

(ii) Other non-tidal waters of the United States, including adjacent wetlands, that are not part of a surface tributary system to interstate waters of received from the district or division

engineer

(b) Notification pursuant to the nationwide permit at § 330.5(a)(26) must be in writing and include the information listed below. Notification is not an admission that the proposed work would result in more than minimal impacts to waters of the United States; it simply allows the district or division engineer to evaluate specific activities for compliance with general permit criteria.

(1) Name, address, and phone number

of the general permittee;

(2) Location of the planned work;
(3) Brief description of the proposed work, its purpose, and the approximate size of the waters, including wetlands, which would be lost or substantially adversely modified as a result of the work; and

(4) Any specific information required by the nationwide permit and any other information that the permittee believes

is appropriate.

(c) District engineer review of notification. Upon receipt of notification, the district engineer will promptly review the general permittee's notification to determine which of the following procedures should be followed:

(1) If the nationwide permit at § 330.5(a)(28) is involved and the district engineer determines either. (i) the proposed activity falls within a class of discharges or will occur in a category of waters which has been previously identified by the Regional Administrator, Environmental Protection Agency: the Regional Director, Fish and Wildlife Service: the Regional Director, National Marine Fisheries Service: or the heads of the appropriate state natural resource agencies as being of particular interest to those agencies; or (ii) the particular discharge has not been previously identified but he believes it may be of importance to those agencies. he will promptly forward the notification to the division engineer and the head and appropriate staff officials of those agencies to afford those agencies an adequate opportunity before such discharge occurs to consider such notification and express their views, if any, to the district engineer concerning whether individual permits should be

required.

(2) If the nationwide permits at § 330.5(a) (7), (17), or (21) are involved and the Environmental Protection Agency, the Pish and Wildlife Service, the National Marine Fisheries Service or the appropriate state natural resource or water quality agencies forward concerns to the district engineer, he will forward those concerns to the division engineer

together with a statement of the factors pertinent to a determination of the environmental effects of the proposed discharges, including those set forth in the 404(b)(1) guidelines, and his views on the specific points raised by those

(3) If the nationwide permit at § 330.5(a)(21) is involved the district engineer will give notice to the Environmental Protection Agency and the appropriate state water quality agency. This notice will include as a minimum the information required by paragraph (b) of this section.

(d) Division engineer review of notification. The division engineer will review all notifications referred to him in accordance with paragraph (c)(1) or (c)(2) of this section. The division engineer will require an individual permit when he determines that an activity does not comply with the terms or conditions of a nationwide permit or does not meet the definition of a general permit (see 33 CFR 322.2(f) and 323.2(n)) including discharges under the nationwide permit at § 330.5(a)(26) which have more than minimal adverse environmental effects on the aquatic environment when viewed either cumulatively or separately. In reaching his decision, he will review factors pertinent to a determination of the environmental effects of the proposed discharge, including those set forth in the 404(b)(1) guidelines, and will give full consideration to the views, if any, of the federal and state natural resource agencies identified in paragraph (c) of this section. If the division engineer decides that an individual permit is not required, and a federal or appropriate state natural resource agency has indicated in writing that an activity may result in more than minimal adverse environmental impacts, he will prepare a written statement, available to the public on request, which sets forth his response to the specific points raised by the commenting agency. When the division engineer reaches his decision he will notify the district engineer, who will immediately notify the general permittee of the division engineer's decision.

§ 330.8 Discretionary authority.

Except as provided in paragraphs (c) (2) and (d) of this section, division engineers on their own initiative or upon recommendation of a district engineer are authorized to medify nationwide permits by adding regional conditions or to override nationwide permits by requiring individual permit applications on a case-by-case basis, for a category of activities, or in specific geographic areas. Discretionary authority will be

based on concerns for the aquatic environment as expressed in the guidelines published by EPA pursuant to section 404(b)(1). (40 CFR Part 230)

(a) Activity Specific conditions.

Division engineers are authorized to modify nationwide permits by adding individual conditions on a case-by-case basis applicable to certain activities within their division. Activity specific conditions may be added by the District Engineer in instances where there is mutual agreement between the district engineer and the permittee. Furthermore, district engineers will condition NWPs with conditions which have been imposed on a state section 401 water quality certification issued pursuant to § 330.9 of this Part.

(b) Regional conditions. Division engineers are authorized to modify nationwide permits by adding conditions on a generic basis applicable to certain activities or specific geographic areas within their divisions. In developing regional conditions, division and district engineers will follow standard permit processing procedures as prescribed in 33 CFR Part 325 applying the evaluation criteria of 33 CFR Part 320 and appropriate parts of 33 CFR Parts 321, 322, 323, and 324. Division and district engineers will take appropriate measures to inform the public of the additional conditions.

(c) Individual permits-(1) Case-by-Case. In nationwide permit cases where additional individual or regional conditioning may not be sufficient to address concerns for the aquatic environment or where there is not sufficient time to develop such conditions under paragraphs (a) or (b) of this section, the division engineer may suspend use of the nationwide permit and require an individual permit application on a case-by-case basis. The district engineer will evaluate the application and will either issue or deny a permit. However, if at any time the reason for taking discretionary authority is satisfied, then the division engineer may remove the suspension, reactivating authority under the nationwide permit. Where time is of the essence, the district engineer may telephonically recommend that the division engineer assert discretionary authority to require an individual permit application for a specific activity. If the division engineer concurs, he may orally authorize the district engineer to implement that authority. Oral authorization should be followed by written confirmation.

(2) Category. Additionally, after notice and opportunity for public hearing, division engineers may decide that individual permit applications

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accordance with § 330.8 of this Part or modification, suspension, or revocation procedures are initiated in accordance with the relevant previsions of 33 CFR 325.7. Activities completed under the authorization of a nationwide permit which was in effect at the time the activity was completed continue to be authorized by that nationwide permit.

[FR Doc. 86-25301 Filed 11-12-86; 8:45 am;

DEPARTMENT OF THE AIR FORCE



REGIONAL CIVIL ENGINEER - BALLISTIC MISSILE SUPPORT (AFESC)
NORTON AIR FORCE BASE, CALIFORNIA 92409-6448

ATTN OF

DEV

27 July 1987

SUBJECT

Section 404 (Wet Lands) Consultation - Rail Garrison/Small ICBM Test Program at Vandenberg AFB CA

CEMCO (MCODE-DD) (Col Shaul)

- 1. In accordance with discussions on 22 July 1987 (Mr Clark, Mr Thompson and Dr Sabol) herewith is transmitted a preliminary draft of the Environmental Assessment (EA) and project layout for the above referenced subject.
- 2. The total project activities will disturb about 25.0 acres. This would include about 1.6 acres of isolated wetlands located on San Antonio Terrace which would be filled. No protected plant and animal species will be significantly impacted. It is our understanding that if 1.0 to 10.0 acres of isolated wet lands are filled and no major impacts occur to T & E species, this project might fall under the provisions of National Permit #26.
- 3. We request that your office evaluate the need for an individual Corps of Engineers permit. It is hoped that you can make your determination of finding by 17 Aug 1987. Our point of contact for this work is Dr John R. Sabol, Ext 3804.

Succes

PETER WALSH, Lt Col, USAF Director Environmental Planning Division 2 Atch

1. Draft EA

2. Project Layout

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MEMO FOR RECORD

Visit with California Coastal Commission

On 9 Oct 1987 Maj Jim Van Ness and the undersigned met with James R. Railas and Jim McGrath of the State Coastal Commission at 631 Howard Street, San Francisco (415) 543-8555. The proposed Small ICBM and Peacekeeper in Rail Garrison test work at Vandenberg AFB was briefed and it was agreed that no spillover affects existed which might cause a consistency report to be written. However, there was some disagreement about the sovereignty of the Air Force regarding the powers of the Coastal Commission. This was resolved with the agreement that the Air Force (Maj Van Ness) will develop a negative declaration and submit same to the Commission with the EA and FONSI. Jim McGrath indicated that it would take about 15 days to respond with a letter agreeing to the Air Force's position.

JOHN R. SABOL, J.D., P.E.

Project Officer

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CZMA NEGATIVE DETERMINATION

Peacekeeper in Rail Garrison and Small ICBM Flight Test Programs

1. <u>Background</u>. The Air Force has determined that a consistency determination is not required for the Peacekeeper in Rail Garrison and Small ICBM Flight

Test Programs because neither program will directly affect the coastal zone.

Construction and operation activities for both programs will be confined to

Vandenberg Air Force Base—federally—owned property excluded from the coastal zone. In addition, neither program is expected to have spillover impacts that will directly affect coastal zone areas, uses, or resources in any significant way.

This negative determination documents the Air Force's decision not to prepare a consistency determination for the Peacekeeper in Rail Garrison and Small ICBM Flight Test Programs. This document summarizes the flight test programs and predicted environmental impacts, and briefly sets forth the facts that support the Air Force's conclusion that neither program will directly affect the coastal zone. Additional, more-detailed information may be found in the following attached documents, each of which is incorporated herein by reference:

- a. Environmental Assessment, Peacekeeper in Rail Garrison and Small ICBM
 Flight Test Programs, Vandenberg Air Force Base, California, (date).

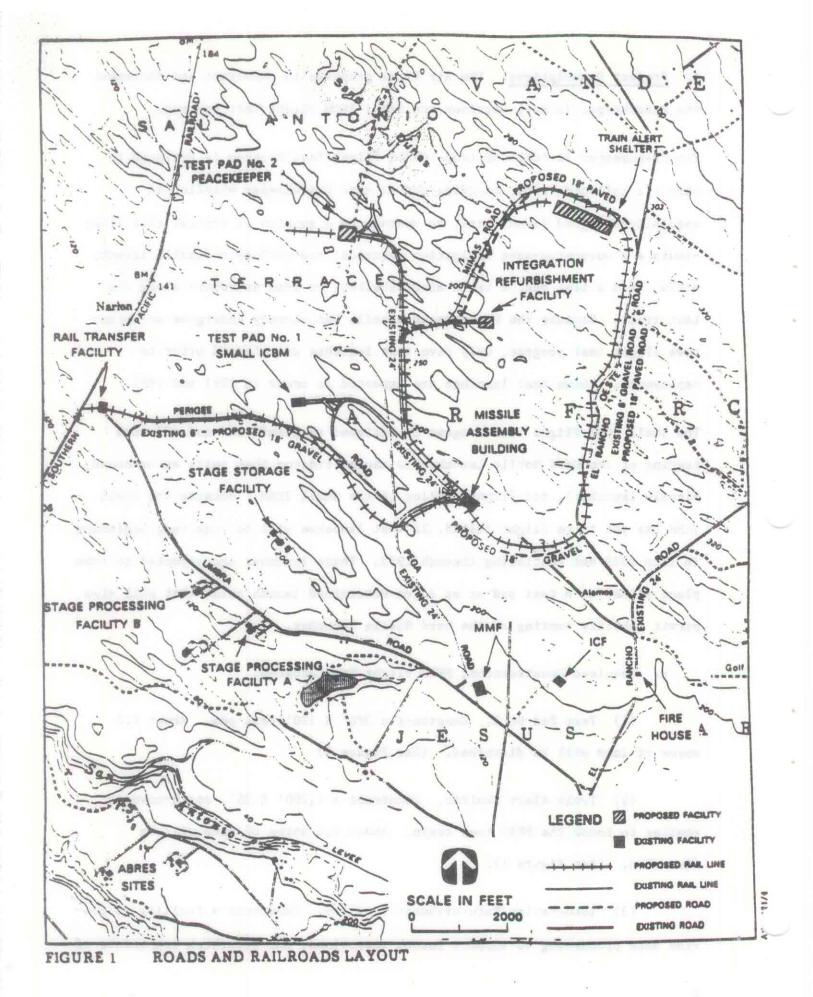
 [Atch 1]
 - b. Finding of No Significant Impact, (date) . [Atch 2]
 - c. Biological Assessment, (date) . [Atch 3]

 Project Descriptions. The Air Force proposes to construct and implement the Peacekeeper in Rail Garrison and Small ICBM Flight Test Programs.

The Peacekeeper in Rail Garrison (PKRG) Flight Test Program is designed to permit a railroad train, carrying one or more Peacekeeper missiles in specially-designed launch cars, to operate on a section of typical rail line; simulate a move-stop-move navigation sequence; and perform a missile launch, either from a test pad, a train alert shelter, or from somewhere along the test track. Because the Peacekeeper missile has already undergone an extensive flight test program, only five test launches are planned prior to deployment. These test launches are expected to occur in 1991 and 1992.

The Small ICBM Flight Test Program is designed to permit on- and off-road testing of the Hard Mobile Launcher (a manned tractor that pulls an unmanned missile launcher), and flight testing of the Small ICBM. Because the Small ICBM has yet to be flight tested, 22 test launches will be required, beginning in late 1989 and continuing through 1992. These launches are expected to take place either at a test pad or at a pre-determined launch point that will also permit mobility testing of the Hard Mobile Launcher.

- a. Required Construction, PKRG Flight Test Program.
- (1) Test Pad No 2. Construct a 320' X 120' test pad. About 1.2 acres of land will be disturbed. (See Figure 1)
- (2) Train Alert Shelter. Construct a 1,200' X 26', earth-covered shelter to house the PKRG test train. About 2.1 acres of land will be disturbed. (See Figure 1).
- (3) Integration/Refurbishment Facility. Construct a facility to provide data processing to support launch operations, and refurbish components of



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the PKRG test train. About 0.8 acres of land will be disturbed.

(See Figure 1)

- (4) Rail Lines. About 7.1 miles of new rail line will be required, as follows (see Figure 1):
- (a) Rail Transfer Facility to Missile Assembly Building -
 - (b) Missile Assembly Building to Test Pad 2 1.55 miles.
 - (c) Integration/Refurbishment Facility Spur 0.3 miles.
- (d) Integration/Refurbishment Facility to Train Alert Shelter 1.05 miles.
- (e) Train Alert Shelter to Missile Assembly Building 2.39 miles.
- (f) Although presently not part of the project design, an approximately 2-mile return loop may become necessary between Test Pad 2 and the Rail Transfer Facility.
- (5) Roads. About 5.5 miles of new roads will be required, as follows (see Figure 1):
- (a) Rail Transfer Facility to Missile Assembly Building 1.8 miles, 18-foot wide gravel.
- (b) Integration/Refurbishment Facility Spur 0.3 miles, 18-foot wide paved.

- (c) Integration/Refurbishment Facility to Train Alert Shelter 1.05 miles, 18-foot wide paved.
- (d) Train Alert Shelter to Missile Assembly Building 1.7 miles, 18-foot wide paved; 0.7 miles, 18-foot gravel.
- b. Required Construction, Small ICBM Flight Test Program. An alternative launch site will be prepared near LF-24 (an abandoned Minuteman Launch Facility). (See Figure 2) Work may be limited to the placement of fill and minor grading at the site. Depending on test requirements, however, a preengineered metal shelter, approximately 125' X 50', may be constructed near the site. About 3.0 acres of land will be disturbed.
- c. Personnel requirements, PKRG Flight Test Program. Approximately 900 personnel will be required; however, only 170 new personnel will be needed, as the remainder are already present at Vandenberg AFB.
- d. Personnel Requirements, Small ICBM Flight Test Program. Approximately
 170 new personnel will be required.
- Predicted Environmental Consequences.
 - a. Biological Resources.
- (1) Vegetation. Combined, these programs will permanently eliminate 24 acres of vegetation and temporarily disturb another 68 acres. Of the nearly 92 acres that will consequently be disturbed by this project, 1.8 acres are presently dominated by iceplant; the remaining 89.9 acres are dominated by native vegetation. Of these 89.9 acres, 1.7 acres are characterized by a prevalence of vegetation typically adapted for life in saturated soil conditions and are therefore considered wetlands.

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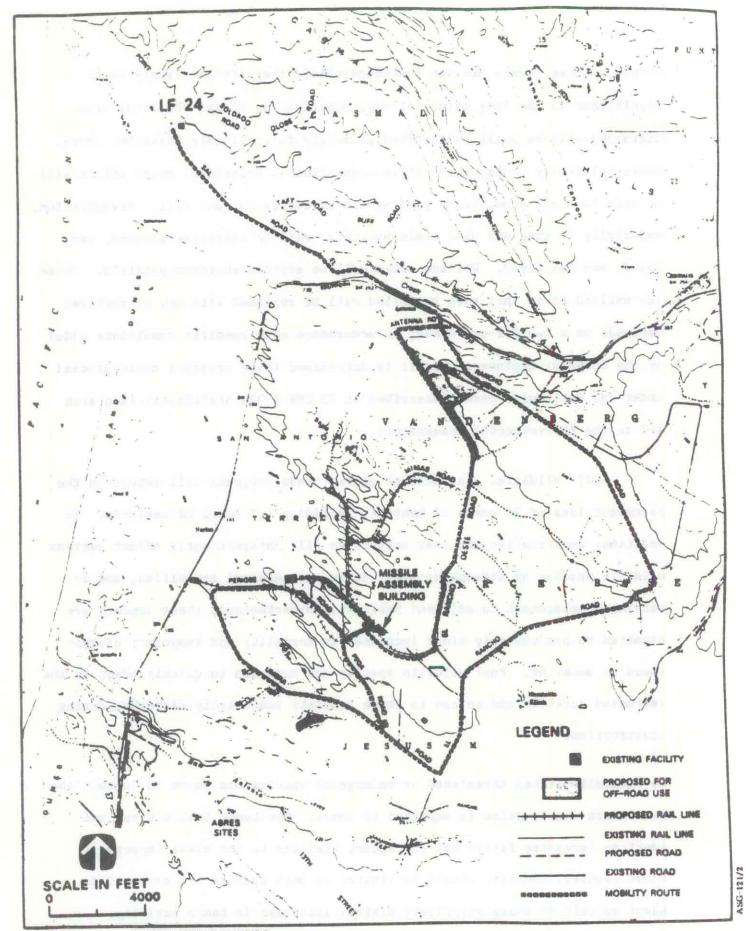


FIGURE 2 MOBILITY ROUTES

Although these losses are not inconsequential, they are not likely to be significant in the long term. At most construction sites, the total area disturbed will be small and limited primarily to previously disturbed areas. Where relatively undisturbed native vegetation is prevalent, every effort will be made to avoid unnecessary grading and excessive cut and fill. Revegetation, especially in dune and dune swale habitats, will be carefully planned, executed, and monitored. Wetland areas will be avoided wherever possible. Those few wetland acres that must be filled will be replaced with new or restored wetlands on a two-for-one basis, in accordance with specific conditions added by the Corps of Engineers when it is determined these projects could proceed under the nationwide permit described at 33 CFR § 330.5(a)(26)(i) [see Atch A-2 to the Environmental Assessment].

(2) Wildlife. As outlined above, these programs will result in the permanent loss of 24 acres of habitat, including 1.7 acres of wetlands. In addition, construction and test activities will intermittently affect various wildlife species by disrupting their daily and seasonal activities, and by causing displacement to adjacent habitats. Nevertheless, these impacts are expected to produce only minor increases in mortality and temporary disruptions of behavior. Most wildlife species are expected to quickly adapt to the increased activity and return to those habitats temporarily disturbed during construction.

No federally-listed threatened or endangered species are known to inhabit the area where construction is expected to occur. The Least Bell's Vireo and American Peregrine Falcon are infrequent visitors to the area; impacts to these species, however, should be limited as both species are expected to adapt quickly to these relatively minimal increases in human activity.

Increased noise levels associated with missile test launchers could temporarily disrupt the normal activities of the Guadalupe Fur Seal, California Least Tern, Brown Pelican, and Southern Sea Otter, all federally-listed threatened or endangered species that occur along the Vandenberg AFB coast. These disruptions are not, however, expected to be significant. Studies have shown that these animals can be expected to resume normal behavioral activities immediately following the test launches. In addition, no launch trajectories will be used that will permit a missile to directly overfly any of the Channel Islands.

If the optional rail line from Test Pad 2 to the Rail Transfer Facility must be constructed, important dune swale wetlands could be affected. If this line must be constructed, however, the Air Force will make every effort to choose an alignment that will avoid wetland habitats and parallel the existing Southern Pacific rail line. This environmentally-preferable alignment will eliminate many of the adverse impacts that might otherwise occur.

(b) Cultural Resources. As one of the few nearly intact coastal dune areas along the central California coast, San Antonio Terrace is particularly valuable for archaeological research. For this reason, the Air Force has—and will continue—to make every effort to avoid impacts to all Register—eligible cultural resources through rerouting or redesign of the proposed facilities. As a result of these efforts, only two known archaeological sites are expected to be affected by these programs.

Site TT4, which is believed to be an overnight campsite, is located south and west of the intersection of Pega and Perigee Roads, due south of the alignment proposed for the rail line between the Rail Transfer Facility and the Missile

Assembly Building. (See Figure 3) Because the rail alignment in this vicinity will require filling instead of grading, it is expected that this site will be preserved intact.

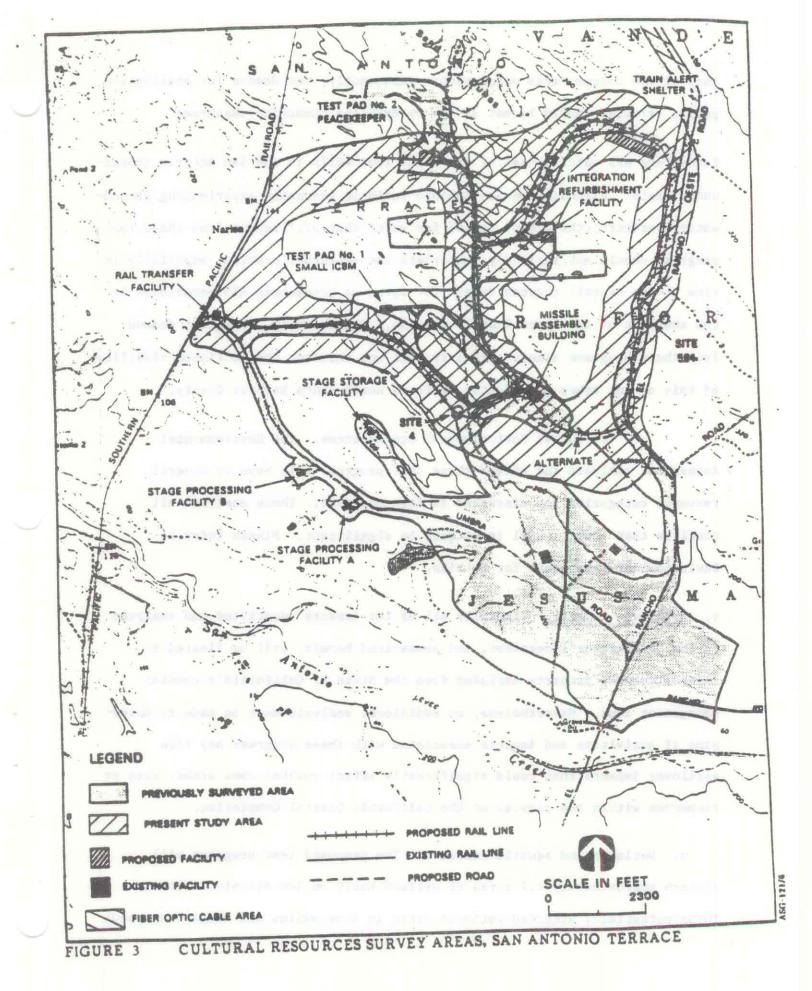
Site SBa-594, also an overnight campsite, is located along El Rancho Oeste Road (see Figure 3). Because Site SBa-554 has previously been disturbed during road construction and the installation of fiber-optic cable, it is no longer believed to be eligible for the National Register.

None of the remaining known archaeological sites are expected to be affected by these programs. However, realignments may be required that could affect cultural properties, and new Register-eligible properties may be discovered during construction. Consequently, a Programmatic Agreement is being prepared with the assistance of the California State Historic Preservation Officer and the Advisory Council on Historic Preservation to ensure that all Register-eligible properties are handled in strict accordance with the requirements of the National Historic Preservation Act.

(c) Socio-Economic Impacts. Due principally to the relatively modest scope of these programs, socio-economic impacts to Vandenberg AFB and the surrounding support communities are not expected to be significant.

Quering the peak construction year (1986), only 110 construction workers will be needed, and many are expected to come from the extant community workforce.

Approximately 340 new technical personnel will be required to support these programs. Of this number, 140 technicians will likely be transferred to these test programs from existing base programs. The remaining 200 personnel needed will be new inmigrants, bringing roughly 480 new residents to the Lompoc/Santa Maria area. This modest inmigration, however, represents just 42 of one per-



A-10

cent of the current area population; consequently, the demand for housing and public services should be met easily by existing community resources.

Vandenberg AFB obtains most of its water from wells in the San Antonio ground-water basin. Although the San Antonio basin is currently experiencing ground-water overdraft, the modest demand for water that will result from these test programs should not seriously exacerbate the overdraft problem, especially in view of the overall reduced demand for water at Vandenberg AFB occasioned by the shutdown of the Space Shuttle program. Consequently, inmigrant demand from these programs almost certainly will not threaten the continued viability of this or any other groundwater basin in north Santa Barbara County.

- (d) Other Environmental Consequences. The Environmental Assessment analyzes the affect these test programs will have on several resource categories not discussed in this document. These analyses all conclude that impacts will in no case be significant. Please refer to Environmental Assessment for details.
- 4. Spillover Impacts. Virtually all of the impacts identified and analyzed in the Environment Assessment, and summarized herein, will be limited to federally-owned property excluded from the State of California's coastal management zone. Nevertheless, an additional analysis must be made to determine if activities and impacts associated with these programs may have spillover impacts that could significantly affect coastal zone areas, uses or resources within the purview of the California Coastal Commission.
- a. Wetlands and Aquatic Habitats. The proposed test programs will disturb approximately 1.7 acres of wetland habit on San Antonio Terrace.

 These potentially affected wetlands occur in dune swales and range from ponds

and marshes. Mesic conditions in these ponds and marshes result primarily from the level of the water table, rather than from seasonally-ponded precipitation. A few vernal wetlands occur in San Antonio Terrace and are formed by seasonally-ponded water. One vernal wetland, which occurs on the edge of a marsh, may be disturbed by this project. In compliance with Corps-imposed conditions, all wetlands disturbed by this project will be replaced or restored at a ratio of 2:1. These wetland impacts are of local concern because of their value to local wildlife populations and sensitive plant species. These impacts, however, are not expected to affect regional populations of wildlife or sensitive plants because numerous other wetlands of similar value occur on San Antonio Terrace, and the larger wetlands of regional importance on San Antonio Creek and Shuman Creek will remain undisturbed by this project.

- b. Sedimentation. No construction is expected to occur close enough to San Antonio Creek to result in increased sedimentation. This important aquatic habitat will therefore not be disturbed directly by this project. An off-road testing area for the Hard Mobile Launcher is planned for a cattle-grazed terrace adjacent to Shuman Creek. (See Figure 2) This testing program will result in loss of vegetation and soil destabilization on this terrace. Creation of a buffer zone between the testing area and Shuman Canyon, and the use of other sediment control measures, should minimize sedimentation in Shuman Creek. Consequently, no adverse impacts to habitats in Shuman Canyon are expected.
- c. Groundwater Overdraft. Although continued overdrafting of the San
 Antonio basin threatens the integrity of Barks Slough, and threatens to reduce
 streamflow in San Antonio Creek (and, consequently, the continued presence of

the endangered Unarmored Three-Spine Stickleback), the limited demand imposed by these programs is not believed to be significant, especially in light of the reduced demand for water resulting from suspension of the Space Shuttle program.

d. Flight Testing. Several threatened and endangered wildlife species, which may be affected by increased noise levels, occur on Vandenberg AFB.

These species are the Guadalupe Fur Seal, California Least Tern, Brown Pelican, and Southern Sea Otter. Previous studies indicate that is is unlikely that any adverse impacts to these species will occur as a result of the proposed flight-testing program.

The primary population of Guadalupe Fur Seals in the region is located on San Miguel Island, approximately forty miles south of Vandenberg AFB. Launch trajectories for these programs are expected to be to the west and southwest of Vandenberg AFB and will not pass directly over San Miguel Island. The San Miguel population will therefore not be adversely affected by increased noise levels associated with test launches because the noise impacts will be temporary and will not be at a level which would cause permanent impact to habitat use, population growth, or pup survival. Guadalupe Fur Seals may occasionally occur along the shoreline west of Vandenberg AFB. Any fur seals located along the shoreline west of the base will be subjected to higher noise levels during launches than the San Miguel population. These animals, however, will not receive any permanent, adverse impacts because the potential impacts (e.g., disruption of resting activities) will be temporary and the Guadalupe Fur Seals are expected to resume normal behavioral activities immediately following these disturbances.

Brown Pelicans are commonly seen along the coast near Vandenberg AFB and nest on Anacapa Island approximately eightly miles southeast of Vandenberg AFB. The nesting colony on Anacapa Island is not on the anticipated launch trajectory and will not be affected by launch-generated noise. Pelicans found along the coast during test launches will be subjected to increased noise levels but will not be adversely affected. These potential impacts (e.g., disruption of feeding activities) will be temporary and pelicans are expected to resume normal behavioral activities immediately following these disturbances.

California Least Terns nest on Vandenberg AFB with the majority of nesting activity occurring south of Purisima Point. A comprehensive noise study was conducted on nesting least terns on Vandenberg AFB in 1984 to determine the effect of Minuteman missile launches on nesting behavior (Henningson, Durhan, & Richardson 1981). The study concluded that Minuteman launches had no adverse impact on nesting California Least Terns. Noise increases associated with test launches of the Peacekeeper and Small ICBM are expected to be similar to those experienced during Minuteman launches.

The US Fish and Wildlife Service is currently establishing a new population of Southern Sea Otters on San Nicolas Island, located approximately 110 miles southeast of Vandenberg AFB. This population will not be affected by the proposed test launches because launch trajectories will be to the west and southwest of Vandenberg and will not pass over San Nicolas Island. Sea otters which occur along the coastline west of Vandenberg during test launches will be affected by increased noise levels during launch. These temporary impacts will not be adverse because sea otters are expected to resume normal behavioral activities immediately following these disturbances.

RESCHENCE

The Peacekeeper in Rail Garrison and Small ICBM Flight Test 5. Conclusion. Programs are not expected to precipitate spillover impacts that will directly affect in any significant way coastal zone areas, uses or resources within the purview of the California Coastal Commission. Consequently, the Air Force has concluded that a formal consistency determination is not required for either of these programs.

PETER WALSH, Lt Colonel, USAF Director, Environmental Planning Division

3 Atch 1. Environmental Assessment. Peacekeeper in Rail Garrison and Small ICBM Flight Test, (date) Programs, Vandenberg AFB, CA 2. Finding of No Significant Impact, (date) 3. Biological Assessment, maked come the column and and and and an action of matter and all as (date) and a track to



United States Department of the Interior

FISH AND WILDLIFE SERVICE

LAGUNA NIGUEL FIELD OFFICE 24000 Avila Road Laguna Niguel, California 92656

August 27, 1987,

Lieutenant Colonel Peter Walsh, Director Environmental Planning Division Department of the Air Force Norton Air Force Base, California 92409

Attn: John Sabol

Re: Endangered Species Information for the Proposed Peacekeeper and Small ICBM Flight Test Programs, Santa Barbara County, California (#1-6-87-SP-233)

Dear Colonel Walsh:

This is in response to your letter, dated July 29, 1987 and received by us on July 31, 1987, requesting information on listed and proposed endangered and threatened species which may be present within the area of the subject project in Santa Barbara County, California.

The attached list of species fulfills the requirements of the Fish and Wildlife Service (Service) under Section 7(c) of the Endangered Species Act of 1973, as amended (Act).

Your agency has the responsibility to prepare a Biological Assessment the project is a construction project which may require an agency still has the responsibility to review its proposed activities and determine whether the listed species will be affected.

During the assessment or review process, your agency may engage in planning efforts, but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of Section 7(d) of the Endangered Species Act. If a period may be affected, your agency should request, in writing through our office, formal consultation pursuant to Section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to listed species prior to a written request for formal consultation. We have also included a list of candidate species presently under review by this Service for consideration as endangered or threatened. It should be noted that the species have no protection under the Act. Therefore, you are not required to perform a Biological Assessment for candidate species nor to consult with the Fish and Wildlife Service should you determine your project may affect candidate species. They are included for the sole purpose of notifying Federal agencies in advance of possible proposals and listings which at some time in the future may have to be considered in planning Federal

activities. If early evaluation of your project indicates that it is likely to adversely affect a candidate species, you may wish to request technical assistance from this office.

Should you have any questions regarding the species listed above, or your responsibilities under the Act, please call Ray Bransfield at FTS 796-4270 or (714) 643-4270.

Sincerely,

Nancy M. Kaufman

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Field Office Supervisor

Enclosure

[&]quot;Construction Project" means any major Federal action which significantly affects the quality of the human environment designed primarily to result in the building or erection of man-made structures such as dams, buildings, roads, pipelines, channels, and the like. This includes Federal actions such as permits, grants, licenses, or other forms of Federal authorizations or approval which may result in construction.

LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CANDIDATE SPECIES THAT MAY OCCUR IN THE AREA OF THE PROPOSED

Peacekeeper and Small ICBM Flight
Test Programs, Santa Barbara, California
1-6-87-SP-233

LISTED SPECIES

Mammals
Southern sea otter
Guadalupe fur seal

Enhydra lutris nereis (T)
Arctocephalus townsendi (T)

Birds
Brown pelican
California least tern

Pelecanus occidentalis (E)
Sterna antillarum browni (E)

CANDIDATE SPECIES

Mammals
Spotted bat
Townsend's western big-eared bat
Greater mastiff bat

Euderma maculata (2)
Plecotus townsendii townsendii (2)
Eumops perotis californicus (2)

Birds
White-faced ibis
Ferruginous hawk
California black rail
Western snowy plover
Long-billed curlew
Tricolored blackbird

Plegadis chihi (2)
Buteo regalis (2)
Laterallus jamaicensis coturniculus (2)
Charadrius alexandrinus nivosus (2)
Numenius americanus (2)
Agelaius tricolor (2)

Amphibians Arroyo toad

Bufo microscaphus californicus (2)

Invertebrates
Salt marsh skipper butterfly

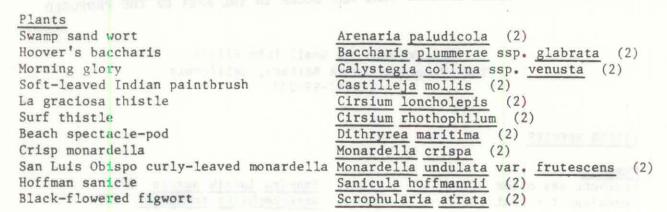
Panoquina panoquinoides errans (2)

(E) -Endangered
 (T) -Threatened
 (CH) -Critical Habitat
 (1) -Category 1: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.

(2) -Category 2: Taxa which existing information indicates may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

(3) -Category 3(c): Taxa more common than previously thought, no longer being considered for a listing proposal at this time.

LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CANDIDATE SPECIES CONT



A-18



DEPARTMENT OF THE AIR FORCE

REGIONAL CIVIL ENGINEER - BALLISTIC MISSILE SUPPORT (AFESC) NORTON AIR FORCE BASE, CALIFORNIA 92409

Ms Nancy M. Kaufman 27 October 1987 Field Office Supervisor US Fish and Wildlife Service Laguna Niguel Field Office 2400 Avila Road Laguna Niguel, California 92656

Dear Ms Kaufman

This letter is in response to your August 27, 1987 letter which transmitted names of threatened and endangered species (listed species) that may occur in the area of the proposed Peacekeeper in Rail Garrison and Small ICBM Flight Test Programs on Vandenberg Air Force Base. Careful reading of your letter and the regulations governing interagency cooperation under Section 7 of the Endangered Species Act (the Act) leads us to conclude that the Act does not require the Air Force to prepare a Biological Assessment for this project although we must consider its potential effects on proposed and listed species. Of Junious ses at florer chall nother and fith non list

We have nevertheless prepared a voluntary Biological Assessment (Attachment 1) as provided for by Section 7(c) of the Act to ensure a complete administrative record. We find that the proposed program is not likely to adversely affect any of the four listed species (southern sea otter, Guadalupe fur seal, brown pelican, and California least tern). Support for this finding is contained in the Biological Assessment.

Please inform me, in writing, as to whether you concur with the finding of the Biological Assessment. Section 7(c) provides up to 30 days for your response, but an earlier reply would facilitate Air Force planning and would be appreciated. Fill such and behalfout figlike elegal to derive helically finds

If you desire additional information, please contact John Gill at (714) 382-3804. The blues rank passible of since a passible bas side

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PETER WALSH, Lt Col, USAF 1 Atch

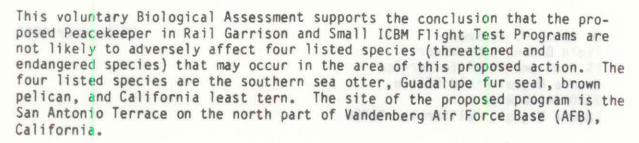
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Director Biological Assessment

VOLUNTARY BIOLOGICAL ASSESSMENT

PEACEKEEPER IN RAIL GARRISON AND

SMALL ICBM FLIGHT TEST PROGRAMS VANDENBERG AIR FORCE BASE, CALIFORNIA



The flight testing program currently proposed will be very similar to the Peacekeeper (formerly M-X) Weapon System Test Program that was described in the Final Environmental Impact Statement, "MX: Milestone II; Vol III -Missile Flight Testing, January 1979." On March 19, 1980, the US Fish and Wildlife Service (Service) provided the Air Force with a Biological Opinion that concluded construction of the Peacekeeper (formerly M-X) Weapon System Test Program "is not likely to jeopardize the continued existence of the southern sea otter, California condor, California brown pelican, peregrine falcon, California least tern, or unarmored threespine stickleback, nor will the action likely result in the destruction or adverse modification of California condor Critical Habitat." The 1980 Biological Opinion was based on a large volume of information provided by the Air Force and compiled by the Service. Chief among this information was the Air Force Biological Assessment dated November 30, 1979.

We acquainted the Service with the currently proposed flight test programs by means of a field examination on July 22, 1987. In addition, via a July 29, 1987 letter, we provided the Service with more detailed written description of the programs (Air Force 1987). Our July 29 letter also asked the Service to provide us with names of listed and proposed species that may occur in the project area. The Service responded with a letter dated August 27, 1987 that attached a list of names which included the four listed species mentioned above, as well as 11 candidate species. This Biological Assessment addresses the four listed species. In addition, the Air Force will anticipate and eliminate or reduce adverse effects which could occur to any of the 11 candidate species. Presently we anticipate no such adverse effects but should unforeseen conditions arise, we will ask the Service for technical advice.

The launch azimuths which have been used since June 17, 1983 for the Peacekeeper Flight Tests will be used for the proposed action. These azimuths result in the re-entry vehicles impacting in the Kwajalein Missile Range, a large area encompassing the Kwajalein Atoll in the western chain of the Marshall Islands, 4,280 nautical miles southwest of Vandenberg AFB. Seventeen Peacekeeper missiles have been launched over these azimuths for test purposes since June 1983 with no apparent adverse effects on any wildlife species near Vandenberg. Continued use of the same launch azimuths will limit disturbance to any of the four listed species.

The nearest primary population of Guadalupe fur seals is located on San Miguel Island approximately 40 miles south of Vandenberg AFB. Launch trajectories will be to the west and southwest from Vandenberg AFB and will not pass directly over San Miguel Island. The San Miguel population will not be adversely affected by increased noise levels associated with test launches because the noise will be temporary and not at a level that could permanently affect habitat use, population growth, or pup survival (USAF 1983a; USAF 1986).

Guadalupe fur seals may occasionally occur along the shoreline west of Vandenberg AFB. Any fur seals located along the shoreline west of the base will be subjected to higher noise levels during launches than the San Miguel population. However, these animals will not receive any permanent, adverse impacts because the potential impacts, for example disruption of resting activities, will be temporary and the Guadalupe fur seals are expected to resume normal behavioral activities immediately following these disturbances (USAF 1983a).

Brown pelicans are commonly seen along the coast near Vandenberg AFB and nest on Anacapa Island approximately 80 miles southeast of Vandenberg AFB (USAF 1983b). The nesting colony on Anacapa Island is not beneath the anticipated launch trajectory and will not be affected by launch-generated noise. Pelicans found along the coast during test launches will be subjected to increased noise levels, but will not be adversely affected. These potential impacts, for example disruption of feeding activities, will be temporary and pelicans are expected to resume normal behavioral activities immediately following these disturbances (USAF 1986).

California least terns nest on Vandenberg AFB, with most nesting activity occurring south of Purisima Point (USAF 1983b). Noise studies were conducted on nesting least terns on Vandenberg AFB to determine the effect of missile launches on nesting behavior—in 1980 for Minuteman missiles (Henningson, Durham & Richardson 1981) and 1984 for Peacekeeper missiles (Army Corps of Engineers 1984). Both studies concluded that missile launches had no adverse impact on nesting California least terns. Noise increases associated with test launches of the Peacekeeper in Rail Garrison and Small ICBM are expected to be very similar to those experienced during the previous launches.

The Service is establishing a new population of southern sea otters on San Nicolas Island, approximately 110 miles southeast of Vandenberg AFB. This population will not be affected by the proposed test launches because launch trajectories will be to the west and southwest from Vandenberg and will not pass over San Nicolas Island. Sea otters which occur along the coastline west of Vandenberg will be affected by increased noise levels during launches. These temporary impacts will be minor because sea otters are expected to resume normal behavioral activities immediately following these disturbances (USAF 1986).

The four listed species that may occur in the area of the proposed Peacekeeper in Rail Garrison and Small ICBM Flight Test Programs do not occur sufficiently near the project area to be affected by construction of the proposed facilities or the day-to-day movements of personnel and vehicles. In addition, adverse effects from the missile flight tests are unlikely because of the brevity of the noise created during launch, the distance between any listed species and the launch sites, and the fact that adverse effects on wildlife have not been demonstrated to have resulted from 17 Peacekeeper flight tests conducted since June 1983.

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2 October 1987

Mr. Rob Jackson Office of Historic Preservation Department of Parks and Recreation P.O. Box 942896 Sacramento, CA 94296-0001

Dear Mr. Jackson:

The United States Air Force proposes an undertaking at Vandenberg Air Force Base (AFB) in connection with the Rail Garrison basing made for the Small Intercontinental Ballistics Missile (ICBM). The undertaking is laying rail lines and constructing three new facilities: a train alert shelter, an integration refurbishment facility, and the balance of construction on test pad 2.

The enclosed report, Cultural Resources Survey of Proposed Small ICBM and Peacekeeper in Rail Garrison Test Areas, San Antonio Terrace, Vandenberg Air Force Base, California, describes the archaeological survey and testing program conducted in July and August, 1987, and makes recommendations for future treatment of the project area. In the recent work, 1000-foot wide corridors for each rail line and a radius of 500 feet around each of the three new facilities were surveyed. Of the 41 recorded sites in the project area, five were destroyed during MX construction, leaving 36 to be evaluated for the present undertaking.

Based on Glassow's (1984) typology and site integrity, the Air Force's contractor has recommended that 16 sites are potentially eligible for inclusion in the National Register of Historic Places. In addition; the contractor has recommended that the most efficient and least time consuming management tool is to consider eligibility for an archaeolotical district, rather than determination of eligibility on an individual site basis.

Therefore we ask your concurrence in a determination of eligibility for the San Antonio Terrace Archaeological District. The proposed district boundaries are the following:

- · South: San Antonio Creek
- West: Pacific Ocean
- North: Point Sal Road to unnamed drainage located approximately 1 mile north of the Jesus Maria/Casmalia Rancho boundary and then following the drainage to the Pacific Ocean.

Page 2 DRAFT

• East: From a point on San Antonio Creek proceeding northwest following KOA Road to El Ranch Road. From this intersection the boundary will run parallel and 500 feet east of El Rancho Road to its intersection with Rancho El Oeste Road. The boundary will run north parallel with, and 500 feet east of, Rancho El Oeste Road to the point where Rancho El Oeste Road turns to the northwest. At this point, the boundary will extend along the same bearing to Point Sal Road.

The National Park Service guidelines for applying NRHP criteria (1982:5) also states that archaeological district boundaries "must be based upon a shared relationship among the properties making up the district, such as cultural affiliation, period of use, or site type, or a research problem involving some aspect of intersite relationships." All sites are part of one settlement system, and all are members of three site types. Intersite relationships will be examined to reconstruct activities conducted at the three types of sites within the District. Approximately 125 sites have been recorded within the proposed District boundaries.

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Vandenberg AFB

PROGRAMMATIC AGREEMENT AMONG THE UNITED STATES AIR FORCE THE ADVISORY COUNCIL ON HISTORIC PRESERVATION AND THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICE

WHEREAS, the U.S. Air Force, Department of Defense, proposes to construct Small Intercontinental Ballistic Missile (Small ICBM) and Peacekeeper in Rail Garrison test facilities at Vandenberg Air Force Base (AFB) within the State of California; and,

WHEREAS, the Air Force has responsibilities with regard to Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. Sec. 470f, as amended), and the implementing regulations of the Advisory Council on Historic Preservation, "Protection of Historic Properties" (36 CFR Part 800), the American Indian Religious Freedom Act of 1978, the Archaeological Resources Protection Act of 1979, and Air Force Regulation "Historic Preservation" (AFR 126-7); and

WHEREAS, the Air Force, in consultation with the California State Historic Preservation Officer (SHPO), has determined that the proposed undertaking could have effects upon properties included in or eligible for the National Register of Historic Places (historic properties); and,

WHEREAS, the Air Force has developed extensive compilations and analyses of the existing literature regarding historic properties known to exist within the area to be affected by the undertaking (project area); and,

WHEREAS, pursuant to Section 106 of the National Historic Preservation Act of 1966 and 36 Section 800.13, the Air Force has requested the comments of the Council through the development, execution, and implementation of this Programmatic Agreement (Agreement); and,

WHEREAS, the Air Force, the Council, and the SHPO have consulted and will continue to consult and review the undertaking to consider feasible and prudent approaches to avoid, minimize, or satisfactorily mitigate the adverse effects of the proposed undertaking on historic properties,

NOW, THEREFORE, it is mutually agreed that the Air Force will take into account the effects of the proposed undertaking on historic properties by adhering to the following stipulations.

STIPULATIONS

The Air Force shall ensure that the following measures are carried out:

I. General

- A. The Air Force shall prepare a determination of eligibility for the San Antonio Terrace Archaeological District in consultation with the SHPO. The boundaries of the District are:
 - · South: San Antonio Creek
 - · West: Pacific Ocean
 - North: Point Sal Road west to unnamed drainage located approximately 1 mile north of the Jesus Maria/Casmalia Rancho boundary and then following the drainage to the Pacific Ocean.
 - East: From a point on San Antonio Creek near the intersection of Lompoc-Casmalia Road and (East) San Antonio Road proceeding north on Lompoc-Casmalia Road approximately 1 mile to a road intersecting Lompoc-Casmalia Road from the west, following this road to El Rancho Road. The district boundary then follows El Rancho Road to the northwest to the road's closest approach to the Vandenberg AFB boundary. The district boundary follows the base boundary to its intersection with Point Sal Road.
- B. The Air Force shall afford the SHPO and Council an opportunity to review and comment on all scopes of work relating to historic preservation, and the opportunity to review and comment on the historic preservation reports and other products generated under this Agreement.
- C. The Air Force shall provide data and reports generated under this Agreement to the SHPO.
- D. The Air Force, in consultation with the SHPO, shall notify the public of significant actions proposed under this Agreement, shall provide timely notice to news media, and shall afford the public the opportunity to comment to the Air Force, the SHPO, or the Council regarding these actions.
- E. The Air Force, in consultation with the SHPO, shall ensure that all historic preservation activities are carried out by or under the supervision of qualified persons as described in "Procedures for Approved State and Local Historic Preservation Programs," 36 CFR Part 61, Appendix A.
- F. The Air Force shall ensure that the measures required by this Agreement are carried out by its contractors and agents.
- G. The Air Force, in consultation with the SHPO, shall ensure that its contractors and personnel and resident departments are advised against the illegal collection of historic and prehistoric materials, including human remains, and will encourage those with interests in such materials to participate in nondestructive activities.

II. Preliminary Tasks for the Identification and Evaluation of Historic Properties

- A. The Air Force, in consultation with the SHPO, has completed intensive surface surveys to provide information on existing conditions in the project area. The resulting data will be synthesized with previous research in support of the establishment of the San Antonio Terrace Archaeological District.
- B. During the surveys, the Air Force consulted with representatives of the Santa Ynez Chumash Indian Reservation regarding their concerns about the effects of the proposed undertaking on areas of Native American traditional, sacred, ceremonial, or other use within the project area, which are or might be eligible for inclusion in the National Register. The Air Force shall consider these and any future comments and shall attempt to accommodate them in the Historic Preservation Plan (HPP), and other aspects of the planning and implementation of the undertaking.

III. Development and Implementation of a Historic Preservation Plan

A. Contents of the HPP

In consultation with the SHPO, the Air Force shall develop and implement an HPP for the San Antonio Terrace Archaeological District. The HPP shall address effects from launch facility expansions and associated access roads, construction or upgrading of roads, railroads, areas affected by road upgrading, portions of Vandenberg Air Force Base (AFB) affected by the proposed undertaking, and other elements of the proposed undertaking with the potential to affect historic properties. It is understood that the primary kinds of historic properties to be affected by the proposed undertaking are archaeological and historic sites, and Native American traditional, sacred, ceremonial, and other use areas and that the HPP will give special attention to such kinds of properties. The HPP shall be responsive to the guidelines in Attachment I.

B. Review of the HPP

The Air Force shall afford the Council and the SHPO an opportunity to review and comment on the HPP in its final draft form. The Air Force shall provide the final draft HPP to the Council and SHPO by 15 March 1988. The Council and SHPO shall provide their comments within 45 days of receipt of all relevant documentation. The Air Force shall make every effort to accommodate the comments of the Council and the HPP when finalizing the document. Upon completion of the HPP, the Air Force shall implement it. Should the Council and the SHPO not have any comments within that 45-day period, the Air Force shall implement the HPP as proposed. Disagreements regarding the HPP shall be resolved in accordance with the dispute resolution mechanism in stipulation V of this Agreement.

IV. Avoiding Inadvertent Damage During Preconstruction Studies and Activities

A. The Air Force shall ensure that proper coordination occurs between its personnel and contractors to minimize the danger to historic properties from testing, survey teams, and other activities and personnel. The Air Force shall complete a survey for historic properties prior to all ground-disturbing

activities. The level and standards of surveys undertaken pursuant to this Agreement shall be in conformance with the recommendations of the HPP or shall have the prior approval of the SHPO. No surveys for historic properties shall be necessary if the SHPO has determined, in writing, that local conditions or circumstances make such a survey unnecessary.

- B. Archaeological test excavations may be necessary to evaluate properties and determine appropriate treatments in accordance with the HPP. Test excavations undertaken pursuant to this Agreement shall not be allowed to exceed the scope necessary for such evaluation; procedures for the use of mechanical equipment will be identified in the HPP and will be carried out in accordance with strict archaeological controls.
- C. If subsurface archaeological sites are discovered after construction begins and before the HPP is completed and accepted, construction shall stop and consultation with the SHPO shall be initiated.

V. Dispute Resolution Mechanism

At any time during the implementation of the measures stipulated by this Agreement, should an objection related to historic preservation issues be raised by the Council, the SHPO, a tribally sanctioned representative of an Indian tribe, a representative of local or state government, or a member of the public, the Air Force shall consult with the objecting party to resolve the matter. If the matter cannot be resolved satisfactorily, the Air Force shall forward all documentation relevant to the matter to the Council. Within 30 days after receipt of all relevant documentation, the Council shall:

- A. Notify the Air Force that it concurs in the Air Force's position regarding the matter:
- B. Notify the Air Force of changes that would make the Air Force's position acceptable, agreement with which by the Air Force would resolve the matter; or
- C. Notify the Air Force that it will comment in accordance with 36 CFR Section 800.6(b).

VI. Definitions of Terms Used in this Agreement

- A. Air Force means Vandenberg AFB, and all using agencies and tenants, the Air Force Regional Civil Engineer, Norton AFB (AFRCE-BMS), and their agents or contractors.
- B. <u>Historic Properties</u> means any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places. Further, this term includes, for the purposes of 36 CFR Part 300 and this Agreement, artifacts, records, and remains that are related to and located within such properties. The term, "eligible for inclusion in the National Register," includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet the criteria for inclusion in the National Register.

C. Historic Preservation means activities that include, but are not limited to, the identification, evaluation, protection, rehabilitation, reuse, recording of, and the archaeological excavation, analysis, and reporting of historic properties.

Execution of this Programmatic Agreement evidences that the Air Force has afforded the Council a reasonable opportunity to comment on the deployment of the Small ICBM and Peacekeeper test facilities and its effects on historic properties and that the Air Force has taken into account the effects of this undertaking on historic properties.

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Attachment 1 HISTORIC PRESERVATION PLAN OUTLINE

The Air Force shall ensure that the Historic Preservation Plan (HPP) is responsive to the following guidelines and includes the following contents.

I. Guidelines

- A. The data generated by previous historic preservation studies.
- B. The concerns of local communities and social and ethnic groups.
- C. The American Indian Religious Freedom Act.
- D. 36 CFR Part 61 and its appendices, Department of the Interior, July 1, 1986.
- E. The standards of the Society of Professional Archaeologists.
- F. Secretary of the Interior's "Standards and Guidelines for Archaeology and Historic Preservation," 1983.
- G. Advisory Council on Historic Preservation's "Guidelines for the Consideration of Traditional Cultural Values in the Historic Preservation Review," draft, 1985.
- H. Advisory Council on Historic Preservation's "Preservation Planning in Context", 1983.
- I. Advisory Council on Historic Preservation's "Treatment of Archaeological Properties: A Handbook," 1980.
- J. Air Force Regulation 126-7, "Historic Preservation".
- K. Other applicable federal regulations, standards, and guidelines.

II. Contents

A. Overview

An overview of the cultural and natural history of the project area, consisting of a discussion and assessment of: i) the adequacy of efforts to identify and preserve historic properties; ii) the location and relative significance of known historic properties in the study area; iii) approaches used in the past in the treatment of historic properties, including but not limited to the use of such properties for historic or contemporary purposes, research questions and topics that have been the subject of past investigations, and efforts to interpret for the public and preserve historic properties; iv) the effectiveness of past approaches to treatment.

- B. Identification and Evaluation of Historic Properties
 - A discussion of the type and number of historic properties likely to be found within the project area and their relative significance,

based on the overview and on the results of intensive survey to identify historic properties and localities that could be affected by the proposed undertaking. The system will provide for archaeological testing to determine if significant archaeological deposits exist.

- Provisions for knowledgeable Native American representatives to participate in or be consulted during surveys to identify areas of Native American traditional, sacred, or ceremonial use.
- 3. Project-specific criteria for determining whether properties meet the criteria for inclusion in the National Register of Historic Places, based both on the data needs identified in the research design (cf., II.C.2. of this Attachment I) and on values other than research potential.

C. Treatment of Historic Properties

- A system for avoiding adverse effects on historic properties and areas of Native American traditional, sacred, ceremonial, or other use. These means may include, but not be limited to, redesigning project elements to avoid effects on such properties, providing for security monitors to prevent vandalism during project construction, and restricting access during and after such construction.
- A system for the use of historic properties where feasible for continuing historic or for contemporary or future purposes in a manner that maintains their historic integrity.
- 3. A research design that explicates important research questions, topics, or themes that will make a substantial contribution to the understanding of prehistory and history, and means of answering these research questions, topics, or themes. These questions, topics, or themes will address regional and theoretical data gaps or research inadequacies identified from the overview. Further, the research design will justify the importance of the questions, topics, or themes posed, will identify the number or type of historic properties necessary to answer these questions, topics, or themes, and will discuss both field and laboratory research tasks necessary to answer these questions, topics, or themes.
- 4. A system for treating types of historic properties that are important for reasons other than their historical and archaeological research potential. This may include but not be limited to reuse or rehabilitation of historic properties, and documenting historic properties to the standards of the Historic American Engineering Record/Historic American Building Survey (HAER/HABS); maintaining or enhancing the character of, and appropriate access to, areas of Native American traditional sacred, ceremonial, and other use areas; and provisions for the treatment and disposition of human remains that take into account the beliefs and wishes of Native American groups, based on consultation with their representatives.

5. A system for monitoring ground-disturbing activities in areas where historic properties may exist but are obscured or otherwise invisible on the ground, and treating such properties if found. Should construction monitoring be necessary, the monitors shall be professional archaeologists with qualifications meeting the standards in 36 CFR Section 61, Appendix A, and/or appropriate representatives of Native American groups.

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VANDENBERG SAN ANTONIO TERRACE COMPLIANCE PROCESS

DISTRICT Determination of Eligibility (AFRCE, 3 weeks; SHPO review 30 days) 11/28/87 · letter to SHPO describing undertaking and requesting determination of eligibility copy of survey report documentation demonstrating reason for eligibility (theme) site forms map of project area · precise geographical boundaries of District and reason therefor Determination of Effect (AFRCE, 1 week after survey and staking) analysis of impact to sites determined eligible · appropriate examples of mitigation measures for level of effect (e.g. no adverse effect or adverse effect) If Adverse Effect, prepare MOA (AFRCE, 1 week; review 30 days) 1/11/88 standard Memorandum of Agreement with one of the stipulations committing to preparation of a Cultural Resource Management Plan (CRMP) Write Cultural Resource Management Plan (AFRCE, 2 weeks; 2/11/88-2/28/88 review 30-45 days) summary of previous work research questions site types data requirements · data recovery methods and sample sizes for each type of · monitoring procedures (archaeological and Native American) during construction procedure for mitigating impacts to sites encountered during construction 2/28/88 Curation Agreement (AFRCE/UCSB)

INDIVIDUAL SITES

Same procedure as for a District, multiplied by the number of sites that would be affected by rail lines. In addition, site TT10 requires archival research to determine eligibility and two sites require testing to determine boundaries, if the alternative rail line is chose.



County of Santa Barbara AIR POLLUTION CONTROL DISTRICT

5540 EKWILL, SUITE B, SANTA BARBARA, CALIFORNIA 93111 PHONE: (805) 964-8111 FAX (805) 967-4872

> JAMES M. RYERSON Air Pollution Control Officer

PERMIT TO OPERATE NO. 6988

PAGE 1 OF 3

EQUIPMENT OWNER-OPERATOR:

Department of the Air Force, 6595th Missile Test Group

MAILING ADDRESS:

c/o 1 STRAD/ET, Vandenberg AFB, CA, 93437

EQUIPMENT LOCATION:

Phea Road, Vandenberg AFB, CA

EQUIPMENT DESCRIPTION:

A small ICBM Launch Exhaust Gas Generator:

The Launch Exhaust Gas Generator (LEGG) provides the boost necessary for a "cold-launch." Propellent is burned in the center of the LEGG unit, generating steam, which lifts the missile out of the launcher unit. Once the missile clears the launcher unit the missile engines fire.

CONDITIONS:

- Within sixty (60) days after the close of each calendar year, a report detailing the previous years activities shall be provided to the District. This report shall list the total number of "cold-launches" using the LEGG unit. The report should also detail the amount and type of each contaminant released to the atmosphere.
- Particulate matter emissions shall be minimized to the maximum extent feasible, including ground cleanup of particulate matter in the surrounding area after each launch.
- Operation under this Permit shall be conducted in compliance with all data, specifications and assumptions included with the applications (and supplements thereof) under which this Permit is issued.



PERMIT TO OPERATE NO. 6988

PAGE 2 OF 3

 The equipment must be properly maintained and kept in good condition at all times.

LAWS AND REGULATIONS:

The Permit holder is required to comply with all applicable State, Federal and local laws and regulations and any subsequent changes. The Permit holder should also be particularly aware of the following California Laws and APCD Rules regarding the project which is subject to this Permit:

- 1. In accordance with District Rule 203, unless otherwise authorized herein, this Permit becomes void upon change of equipment owner, equipment operator, location, or if there is a modification as defined in District Rule 205.C, NSR/PSD. However, the Permit will be reissued to a new owner or operator in accordance with Section 42301(c) of the State Health and Safety Code.
 - 2. In accordance with District Rule 201, if equipment or other contrivance claimed by the applicant to be exempt from the requirements to obtain an Authority to Construct or Permit to Operate is to be constructed, all information necessary for the Air Pollution Control Officer to determine whether such an exemption should be granted shall be submitted to the District prior to the construction or operation of the equipment or other contrivance.
- In accordance with State Health and Safety Code Section 41700 and District Rule 303, no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
 - 4. In accordance with State Health and Safety Code Section 42303, the Air Pollution Control Officer may require additional information, analyses, plans or specifications which will disclose the nature, extent, quantity or degree of air contaminants which are, or may be discharged by this facility.
 - 5. In accordance with State Health and Safety Code Section 42304, the Air Pollution Control Officer may suspend this Permit and/or request the District's Hearing Board to



PERMIT TO OPERATE NO. 6988

PAGE 3 OF 3

conduct a Public Hearing to determine whether the Permit should be revoked. Within ten (10) days after receipt of a Permit or Notice of Suspension, the Permittee may petition the District's Hearing Board, in writing, to conduct a Public Hearing to determine whether the Permit was properly conditioned or suspended.

6. In accordance with 40 CFR 60.11 (d), at all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions.

AIR POLLUTION CONTROL OFFICER

SEPTEMBER 02. 1987

DATE

NOTE:

 Pursuant to Rule 210, as revised on 12/15/86, this Permit and all other Permits at your facility are valid for up to one year upon payment of an annual Permit Renewal Fee of \$70.00. In addition, Rule 210 requires Permit reevaluation and assessment of the associated fees every three years.

5404.SS



REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS REQUEST			PLANNING USE ONLY	
	1 STRAD/ET 1 STRAD/ET 1 FROM: (Organization and Office Symbol) 6595 MTG/HL			
TSGT GARY L. VAN HO	UTER		4. ESTIMATED COMP DATE	
TYPE OF ANALYSIS NEEDED				
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TITLE OF PROPOSED ACTION				
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PURPOSE OF AND NEED FOR A	PROPOSED ACTION A	AND ALTERNATIVES		
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DEPARTMENT OF THE AIR FORCE HEADQUARTERS AIR FORCE OPERATIONAL TEST AND EVALUATION CENTER KIRTLAND AIR FORCE BASE, NEW MEXICO 87117 - 7001

9 OCT 1987

ATTN OF TEZ

Swall ICBM Preflight Mobility Requirements

TO HQ BMO/MGET

- 1. The mobility of the Small ICBM presents unique challenges for our combined test program. Since its effect on weapon system accuracy is essentially unknown, we must ensure that mobility is completely evaluated during DT&E/OT&E.
- 2. We intend to conduct preflight mobility exercises prior to OT&E test launches, using scenarios based upon SAC's concept of operations. These will include driving the vehicle on both paved and unpaved surfaces, as well as conducting some number of park/move/park operations prior to launch. We have worked these test requirements, in concert with SAC, during this summer's Mobility TIMs. These exercises drive other requirements, particularly data acquisition and environmental assessment.
- 3. We require real-time guidance data, specifically IMU data, recorded up to missile launch. This information will be analyzed to determine mobility's contribution to system accuracy.
- 4. Environmental assessment is equally important for adequate data collection. We believe the assessment currently under review for Vandenberg AFB ensures AFOTEC the latitude to plan preflight mobility scenarios which operationally stress the missile's guidance system. Any substantive change to this plan would require full coordination with all parties.
- 5. We look forward to working with you to achieve our common goal—a meaningful and realistic evaluation of the Small ICBM. Our point of contact is Lt Col Payne, AV 244-0521.

G. R. HYATT III, Colonel, USAF Chief, Strategic Systems Division

DET 2, HQ SAC
AFOTEC OL-AL
AFOTEC OL-BC



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS STRATEGIC AIR COMMAND OFFUTT AIR FORCE BASE, NEBRASKA 600 13-75001

COORDIVATION

REPLY TO ATTH OF: XPO

SUBJECT: Requirement for Multiple Small ICBM Test Launch Site

TO: RMO/MGE

1. AFR 80-14 requires that Follow-on Operational Test and Evaluation (FOT&E) be conducted in an environment as operationally realistic-as-possible. When HQ SAC begins this phase of the Small ICBM test program we will require multiple launch sites at Vandenberg AFB.

2. Several operational requirements, as well as pur experience with MINUTEMAN FOT&E, form the basis for this requirement.

- a. As stated in the SAC Preliminary System Operational Concept (PSOC), the Small ICBM must be capable of operating on and launching from improved roads (hard surface), unimproved roads (gravel), and off-road conditions. Each of these conditions must be duplicated at Vandenberg AFB. We recognize that environmental constraints may limit the extent of off-road travel at Vandenberg AFB; however, off-road launch capability must be provided in addition to improved and unimproved road launch capability.
- b. Multiple launch sites protect the test program against costly and lengthy delay due to natural disaster or catastrophic system failure.
- c. Single launch sites contain inherent biases which may distort data gathered from operational test launches. Studies of MINUTEMAN launch facilities point to measurable biases. Use of multiple launch sites reduces the distortion of the data base caused by these biases. Accurate data is critical to the SIOP planning process.
- d. SAC must have the capability to exercise a number of launch scenarios which require multiple launch sites. These include Short Time Interval Launches (STIL), in which more than one ICBM is launched within the same launch window. These launches may be separated by as little as 90 minutes, clearly eliminating the possibility of recycling the same launch site. The safety hazard/caution areas for these launch sites must not overlap, so that these scenarios may be conducted within the limited time available.
- e. One of the objectives of FOT&E is to identify needed modifications. If this objective is met and modifications identified, a single launch site would cause an unacceptable conflict between the need to conduct developmental test and evaluation of the modification in parallel with follow-on operational test and evaluation of the deployed weapon system. Multiple launch sites will allow for joint use of one or more launch sites.

- 3. Each test launch location must meet the following requirements:
- a. Launch points must be presurveyed and geodetic/geophysical coordinates precisely known to data analysts.
- b. The location of each launch site must meet test range requirements for adequate safety monitoring, data acquisition, and metric tracking.
- c. Each launch site must supply necessary power and support equipment to operate instrumentation and telemetry systems, command destruct, range tracking, and communications for countdown monitoring and control.
- Please address any questions to Maj Jim Wills, XPQM, AV 271-5801.

GARY L. GURTIN. Colonel, USAF Director of ICBM Requirements DCS/Plans

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